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HUMAN TELOMERASE

ATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAG 60
MetProArgAlaProArgCysArgAlaValArgSerLeuLeuArgSerHisTyrArgGlu 20

GTGCTGCCGCTGGCCACGTTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAG 120
ValLeuProLeuAlaThrPheValArgArgLeuGlyProGlnGlyTrpArgLeuValGln 40

CGCGGGGACCCGGCGGCTTTCGCGCGCTGGTGGCCCAAGTGCCTGGTGTGCGTGCCCTGG 180
ArgGlyAspProAlaAlaPheArgAlaLeuValAlaGlnCysLeuValCysValProTrp 60

GACGCACGGCGCCCCCGCGCCCCCTCCTTCGCCAGGTGTCCTGCCTGAAGGAGCTG 240
AspAlaArgProProProAlaAlaProSerPheArgGlnValSerCysLeuLysGluLeu 80

GTGGCCCGAGTGCTGCAGAGGCTGTGCGAGCGCGGCGCAAGAACGTGCTGGCCTTCGGC 300
ValAlaArgValLeuGlnArgLeuCysGluArgGlyAlaLysAsnValLeuAlaPheGly 100

TTGCGCTGCTGGACGGGGCCCGGGGGCCCCCGAGGCCTTACCACCAGCGTGCGC 360
PheAlaLeuLeuAspGlyAlaArgGlyGlyProProGluAlaPheThrThrSerValArg 120

AGCTACCTGCCCAACACGGTGACCGACGCACTGCGGGGAGCGGGGCGTGGGGGCTGCTG 420
SerTyrLeuProAsnThrValThrAspAlaLeuArgGlySerGlyAlaTrpGlyLeuLeu 140

TTGCGCCGCGTGGGCGACGACGTGCTGGTTACCTGCTGGCACGCTGCGCGCTCTTTGTG 480
LeuArgArgValGlyAspAspValLeuValHisLeuLeuAlaArgCysAlaLeuPheVal 160

CTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCGCTGTACCAGCTCGGCGCT 540
LeuValAlaProSerCysAlaTyrGlnValCysGlyProProLeuTyrGlnLeuGlyAla 180

GCCACTCAGGCCCGGCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAA 600
AlaThrGlnAlaArgProProProHisAlaSerGlyProArgArgArgLeuGlyCysGlu 200

CGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGTCCCCCTGGGCCTGCCAGCCCCGGGT 660
ArgAlaTrpAsnHisSerValArgGluAlaGlyValProLeuGlyLeuProAlaProGly 220

GCGAGGAGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCAGGCGT 720
AlaArgArgArgGlyGlySerAlaSerArgSerLeuProLeuProLysArgProArgArg 240

Fig. 1A



GGCGCTGCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGC 780
GlyAlaAlaProGluProGluArgThrProValGlyGlnGlySerTrpAlaHisProGly 260

AGGACGCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTACCTGCCAGACCCGCCGAA 840
ArgThrArgGlyProSerAspArgGlyPheCysValValSerProAlaArgProAlaGlu 280

GAAGCCACCTCTTTGGAGGGTGCCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGC 900
GluAlaThrSerLeuGluGlyAlaLeuSerGlyThrArgHisSerHisProSerValGly 300

CGCCAGCACACGCGGGCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCT 960
ArgGlnHisHisAlaGlyProProSerThrSerArgProProArgProTrpAspThrPro 320

TGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAG 1020
CysProProValTyrAlaGluThrLysHisPheLeuTyrSerSerGlyAspLysGluGln 340

CTGCGGCCCTCCTTCTACTCAGCTCTCTGAGGCCAGCCTGACTGGCGCTCGGAGGCTC 1080
LeuArgProSerPheLeuLeuSerSerLeuArgProSerLeuThrGlyAlaArgArgLeu 360

GTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCC 1140
ValGluThrIlePheLeuGlySerArgProTrpMetProGlyThrProArgArgLeuPro 380

CGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCTGTTTCTGGAGCTGCTTGGGAACCAC 1200
ArgLeuProGlnArgTyrTrpGlnMetArgProLeuPheLeuGluLeuLeuGlyAsnHis 400

GCGCAGTGCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTACCC 1260
AlaGlnCysProTyrGlyValLeuLeuLysThrHisCysProLeuArgAlaAlaValThr 420

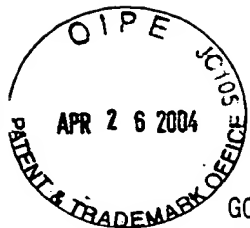
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ProAlaAlaGlyValCysAlaArgGluLysProGlnGlySerValAlaAlaProGluGlu 440

GAGGACACAGACCCCGTGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCTGGCAG 1380
GluAspThrAspProArgArgLeuValGlnLeuLeuArgGlnHisSerSerProTrpGln 460

GTGTACGGCTTCGTGCGGGCTGCCTGCGCCGGCTGGTGGCCCCAGGCCTCTGGGGCTCC 1440
ValTyrGlyPheValArgAlaCysLeuArgArgLeuValProProGlyLeuTrpGlySer 480

AGGCACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCAT 1500
ArgHisAsnGluArgArgPheLeuArgAsnThrLysLysPheIleSerLeuGlyLysHis 500

Fig. 1B



GCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTG 1560
AlaLysLeuSerLeuGlnGluLeuThrTrpLysMetSerValArgAspCysAlaTrpLeu 520

CGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGAGAGCACCGTCTGCGTGAGGAGATC 1620
ArgArgSerProGlyValGlyCysValProAlaAlaGluHisArgLeuArgGluGluIle 540

CTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTGCTGAGCTGCTCAGGTCTTTC 1680
LeuAlaLysPheLeuHisTrpLeuMetSerValTyrValValGluLeuLeuArgSerPhe 560

TTTTATGTCACGGAGACCAGTTCAAAAGAACAGGCTCTTTTTCTACCGAAGAGTGTC 1740
PheTyrValThrGluThrThrPheGlnLysAsnArgLeuPhePheTyrArgLysSerVal 580

TGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGAGCTGCGGGAG 1800
TrpSerLysLeuGlnSerIleGlyIleArgGlnHisLeuLysArgValGlnLeuArgGlu 600

CTGTCGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGA 1860
LeuSerGluAlaGluValArgGlnHisArgGluAlaArgProAlaLeuLeuThrSerArg 620

CTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCTGTG 1920
LeuArgPheIleProLysProAspGlyLeuArgProIleValAsnMetAspTyrValVal 640

GGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCA 1980
GlyAlaArgThrPheArgArgGluLysArgAlaGluArgLeuThrSerArgValLysAla 660

CTGTTACGCGTGCTCAACTACGAGCGGGCGCGGCCCGCCCTCCTGGGCGCCTCTGTG 2040
LeuPheSerValLeuAsnTyrGluArgAlaArgArgProGlyLeuLeuGlyAlaSerVal 680

CTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCAG 2100
LeuGlyLeuAspAspIleHisArgAlaTrpArgThrPheValLeuArgValArgAlaGln 700

GACCCGCCGCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATC 2160
AspProProProGluLeuTyrPheValLysValAspValThrGlyAlaTyrAspThrIle 720

CCCCAGGACAGGCTCACGGAGGTCATGCCAGCATCATCAAACCCAGAACACGTAAGTGC 2220
ProGlnAspArgLeuThrGluValIleAlaSerIleIleLysProGlnAsnThrTyrCys 740

GTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCAGTCCGCAAGGCCTTCAAG 2280
ValArgArgTyrAlaValValGlnLysAlaAlaHisGlyHisValArgLysAlaPheLys 760

Fig. 1C



AGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTG SerHisValSerThrLeuThrAspLeuGlnProTyrMetArgGlnPheValAlaHisLeu	2340 780
CAGGAGACCAGCCCCGTGAGGGATGCCGTGTCATCGAGCAGAGCTCCTCCCTGAATGAG GlnGluThrSerProLeuArgAspAlaValValIleGluGlnSerSerSerLeuAsnGlu	2400 800
GCCAGCAGTGGCCTCTTCGACGTCTTCTACGCTTCATGTGCCACCACGCCGTGCGCATC AlaSerSerGlyLeuPheAspValPheLeuArgPheMetCysHisHisAlaValArgIle	2460 820
AGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTG ArgGlyLysSerTyrValGlnCysGlnGlyIleProGlnGlySerIleLeuSerThrLeu	2520 840
CTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGGGGGATTGGCGGGAC LeuCysSerLeuCysTyrGlyAspMetGluAsnLysLeuPheAlaGlyIleArgArgAsp	2580 860
GGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTGGTGACACCTCACCTACCCACGCG GlyLeuLeuLeuArgLeuValAspAspPheLeuLeuValThrProHisLeuThrHisAla	2640 880
AAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACCTG LysThrPheLeuArgThrLeuValArgGlyValProGluTyrGlyCysValValAsnLeu	2700 900
CGGAAGACAGTGGTGAACCTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTT ArgLysThrValValAsnPheProValGluAspGluAlaLeuGlyGlyThrAlaPheVal	2760 920
CAGATGCCGGCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGACCCTG GlnMetProAlaHisGlyLeuPheProTrpCysGlyLeuLeuLeuAspThrArgThrLeu	2820 940
GAGGTGCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTC GluValGlnSerAspTyrSerSerTyrAlaArgThrSerIleArgAlaSerLeuThrPhe	2880 960
AACCGCGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGTCTTGCGGCTG AsnArgGlyPheLysAlaGlyArgAsnMetArgArgLysLeuPheGlyValLeuArgLeu	2940 980
AAGTGTACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAAC LysCysHisSerLeuPheLeuAspLeuGlnValAsnSerLeuGlnThrValCysThrAsn	3000 1000
ATCTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCA IleTyrLysIleLeuLeuLeuGlnAlaTyrArgPheHisAlaCysValLeuGlnLeuPro	3060 1020

Fig. 1D



TTTCATCAGCAAGTTTGAAGAACCCACATTTTCTGCGCGTCATCTCTGACACGGCC 3120
PheHisGlnGlnValTrpLysAsnProThrPhePheLeuArgValIleSerAspThrAla 1040

TCCCTCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAAGGGC 3180
SerLeuCysTyrSerIleLeuLysAlaLysAsnAlaGlyMetSerLeuGlyAlaLysGly 1060

GCCGCCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCTGCTC 3240
AlaAlaGlyProLeuProSerGluAlaValGlnTrpLeuCysHisGlnAlaPheLeuLeu 1080

AAGCTGACTCGACACCGTGTACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAG 3300
LysLeuThrArgHisArgValThrTyrValProLeuLeuGlySerLeuArgThrAlaGln 1100

ACGCAGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAAC 3360
ThrGlnLeuSerArgLysLeuProGlyThrThrLeuThrAlaLeuGluAlaAlaAlaAsn 1120

CCGGCACTGCCCTCAGACTTCAAGACCATCCTGGACTgatggccacccgcccacagccag 3420
ProAlaLeuProSerAspPheLysThrIleLeuAsp 1132

Gccgagagcagacaccagcagccctgtcacgccgggctctacgtcccagggaggaggagg 3480
Cggccacacccaggcccgaccgctgggagctctgaggcctgagtgagtgtttggccgag 3540
gcctgcatgtccggctgaaggctgagtgctccggctgaggcctgagcgagtgctccagccaa 3600
gggctgagtgctccagcacacctgccgtcttcaactccccacaggctggcgctcggtcca 3660
ccccagggccagcttttcctcaccaggagcccggttccactccccacataggaatagtc 3720
catcccagattcgccattgttcacccctcgccctgccctcctttgccttcacccccac 3780
catccagggtggagaccctgagaaggaccctgggagctctgggaatttgagtgaccaaag 3840
gtgtgccctgtacacaggcgaggaccctgcacctggatgggggtccctgtgggtcaaatt 3900
ggggggagggtgctgtgggagtaaaatactgaatatatgagttttcagttttgaaaaaaa 3960
aaaa 3964

Fig. 1E



Euplotes 1 -----MEVDVDNOADNHGHSALKTCEEIKEAKTLYSWIQKVIRCR--NQSQSHYKDLEDIA
HT1 1 RRLGPQGWRLVQRGDPAAFRALVAQCLVCVPWDAR-PPPAAPSFQVQSCLKELVARVLQRLCERGAKNVLAFGFALLDGA
EST2 1 -----MKILFEFIQDKLDID--LOTNSTYKENLKG

Euplotes 56 IFAQTNIVATPRDYNEEDFKVIARK-----EVFSTGLMIELIDKCLVELLSSSDVSDRQKLQCFGFQKGNQ-LAX
HT1 80 RGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAY--QVCGPPLYQLGAATQA
EST2 30 HFNGLDEILT-FCALPNSRKIALP-----CLPGDLSHKAVIDHCIIYLLTGELLYNN--VLTFGYKIARVEDVNN

Euplotes 126 THLLTALSTQKQYFFQDEWQVRAMIGNELFRHLYTKYLIFQRTSEGLVQFCGNNVFDHLKVNDKFDKKQKGAADMNE
HT1 157 RPPPHASGPRRRLGCERAWWHSVREAGVPLGLPAPGARRRGGSASRSLPLKPRRGAAPERTPVGGGSWAHPGRTGA
EST2 97 SLFCHSANVNVTLKGAAWKMFHSLVGTAFVDLLINYTVIQFNGQ-FFTQIVGNRCNEPLPKKWQRSSS-----

Euplotes 206 PRCCSTCKYNVKNEDHFLNNI-----NVPNWNMKSRTIFCYCTHFNRNNQFF
HT1 237 PSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDK--EQLR
EST2 169 ----SATAAQIKQLTEPVTN-----KQFLHKLNN--SSSFF

Euplotes 255 KKHEFVSNKNNISAM-DRAQTIFTNI-----FRFNRIKKLKDVKIEKIAYMLEKVDFNFNYLTKSCPLPENWRE
HT1 315 PSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRY-WQMRPLFELLGNHAQCPYGVLLKTHCPLRAAVTP
EST2 200 PYSKILPSSSIKKLTLREAIFF-----TNLVKIPQRLKVRINLTQKLLKRHKRLNYVSILNSICPPLEGT--

Telomerase domain

Euplotes 326 RK-----QKIENLINKTREEKS--KYEEELFSYTTDNKCVTQFINEFFYNILPKDFLTGR-NRKNFQKKVKKYVELNKHE
HT1 394 AAGVCAREKPQGSVAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGSRHNERFLRNTKKFISLGKHA
EST2 268 -----VLDLSHLSRQ-----SPKERVLFIIIVILQKLLPQEMFGSKKNKGKIKNLNLLLSPLNG

Euplotes 398 LIHKNLLEKINTREISWMQVET-SAKHFYFDHENIYVLWKLRLWIFEDLVVSLIRCFFYVTEQQKSYSKTYYYRKNIW
HT1 474 KLSLQELTWKMSVRDCAWLRSPGVGCVPAAEHRLREEILAKFLHWMVYVVELLRSFFYVTETTFQKNRLFFYRKSVM
EST2 324 YLPFDSLLKKLRLKDFRWFISD-IWFTKHNFENLN-QLAICFISWLFRLPKIIQTFFCYCTEIS-STVTIYFRHDTW

Motif 1 Motif2

Euplotes 477 DVIMKMSIADLKK-ETLAEVQEKEVEEWKSL-GFAPGKLRLIPKKT--FRPIMTFNKKIVNSDRK--TTKLTNTKLL
HT1 554 SKLQSIGIROHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDG--LRPIVNM DYVVGARTFRREKRAERLTSRVK
EST2 401 NKLITPFI VEYFK-TYLVENNVCRNHNSYTLS-NFNHSMRIIPKKSNEFRIIAIPCRGADEEEFT--IYKENHKNAIQ

Fig. 2A



Motif A

Euplotes 551 NSHMLKTLKN-RMFKDPFGFAVFNYYDDVMKKYEEFVCKWKQVGQP-KLFFATMDIEKCYDSVNREKLSTFLKTTKLLSS
HT1 632 ALFSVLNYERARR--PGLLGASVLGLDDIHRWRTFVLRVRAQDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPN
EST2 477 PTOKILEYLRNKRPTSFTKIYSPTQIADRIKEFKQRLKKFNNVLP-ELYFMKFDVKSCYDSIPMECMRILKDALKNE

Euplotes 629 DFWIMTAQILKRKWNIVIDSKVFRKKEMKDYFRQKFQKIALEGGQYPTLFSVLENEQNDLNAKKT LIVEAK-QRWYFKKD
HT1 710 TYCVRRYAVVQKAAHGHVRKAFKSHVS-----TLTDLPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSG
EST2 556 GFFVRSQYFFN-TNTGVKLKLFNVVN-----A--SRVPKPYELYIDNVRTVHLSNODVINNV-EMEIFKT-

Motif B

Motif C

Euplotes 708 NLLQPVINICQYNYINFNGKFYKQTKGIPQGLCVSSILSSFYATLEESSLGLRDESMNPENPNVNLMLRLTDDYLLIT
HT1 777 LFDVFLRFMCHAVRIR-GKSYVQCQGIPOGGSILSTLLCSLCYGD MEN---KLFAGIRRD-----GLLLRLVDDFLVLT
EST2 616 --ALWVEDKCYIR-----EDGLFQGSLSAPIVDLVYDDLLEFYSEFKASPSQD-----TLILKLADDFLIIS

Motif D

Motif E

Euplotes 788 TQENNAVLFIKELINVSRENGFKFNMKKLQTSFPLSPSKFAKYGMDSVEEQNI VQDYCDWIGISIDMKTLALMPNIMLR
HT1 847 PHLTHAKTFLRTLVRGVPEYGCVVNLRKTVNFPVEALGG-TAFVQMPAHGLFPWCGLLLDTRTLEVOQSDYSSYAR--
EST2 677 TDQQ-QVINIKKLAMG---GFQKYNANRDKILAVS-----SQSDDDTVIQFCAMHIFVKELEVWKHSSTMW---

Euplotes 868 EGILCTNLMMQTKKASMWLKKKLSFLMNNITHYFRKTITTEDFANKTLNKLFISSGGYKYMQCAKEY--KDHFKKNLAM
HT1 924 TSIRASLTFRGFKAGRNMRRKLFGLVRLKCHSLFLDLQVNSLQTVCTNIYKILLQAYRFHACVLQLPFHQVWKNPTF
EST2 741 -----NFHIRSKSS---KGIFRSLIALFNTRISYKTIDTNLSTNTVLMQIDHVVKNISECYKSA--FKDLSINVTQ

Euplotes 946 SSMIDLEVSKIIYSVTRAFFKYLVCNIKDTIFGEEHYDPFFLSTLKHFIETSTKKYIFNRVCMILKAKEAKLKSDQCQS
HT1 1004 FLRVISDTASLCYSILKAKNAGMSLGAAGAAGPLPSEAVQWLC-HQAFLLKLTRHRVTVPLLGSLRTAQTQLSRKLPQT
EST2 808 NMQFHSFLQRJIENTVSG----CPITKCDPLIEYEVR--FTI--LNGFLESLSNNTSKF-KDNIILLRKEIQHLQAYIYI

Euplotes 1026 LIQYDA-----
HT1 1083 TLTALEAAANPALPSDFKTILD
EST2 879 YIHIVN-----

Fig. 2B

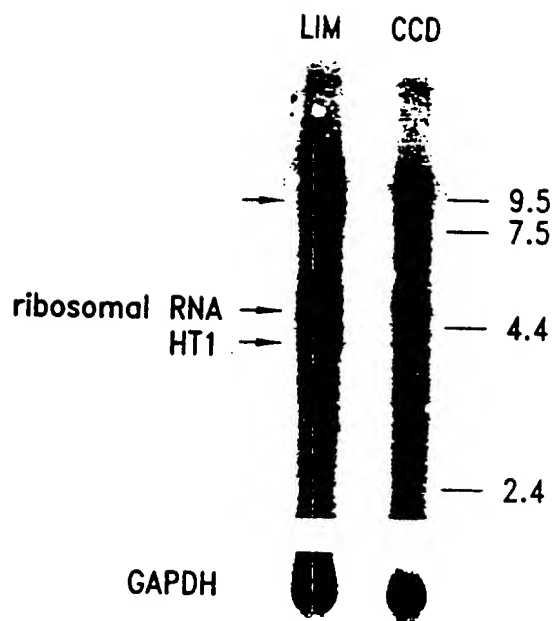


Fig. 3



Plasmid			Human blood					LIM1215				
10	5	1	H	E	P	X	B	H	E	P	X	B



Fig. 4

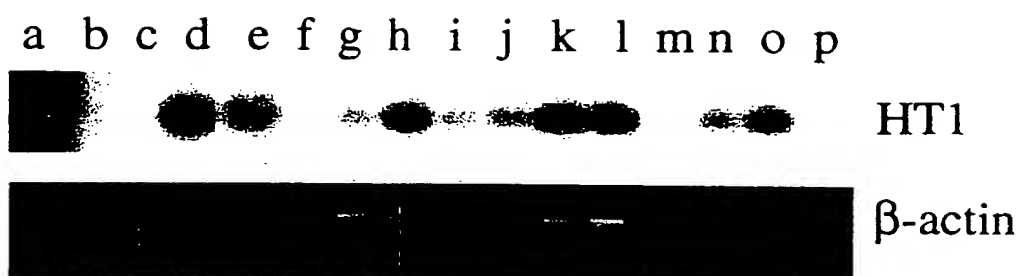
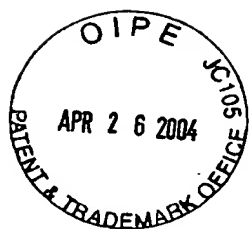


Fig. 5

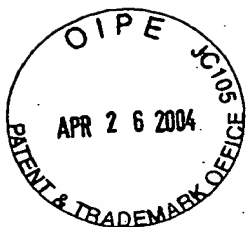


Fig. 6

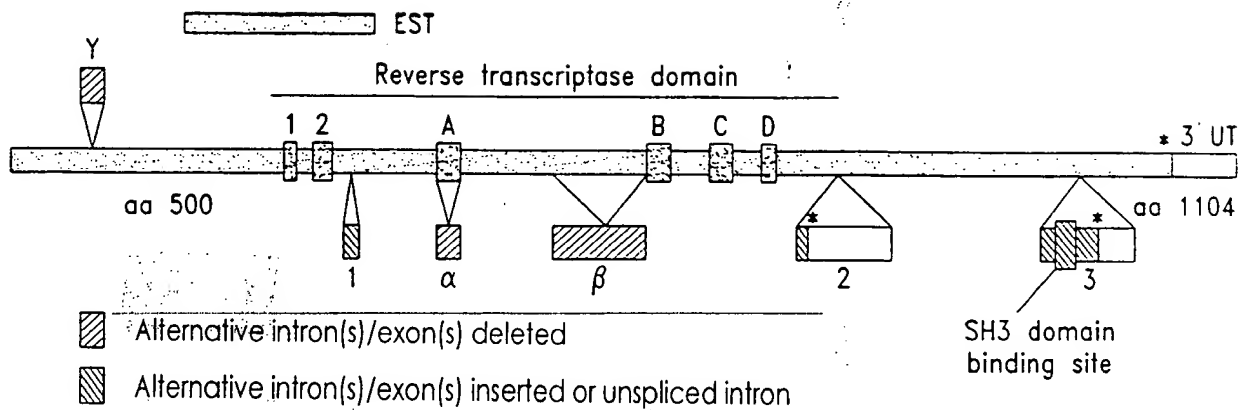


Fig. 7A

Variants:	1	α	β	2	3
RT-PCR product	NO	+	+	NO	+
PCR from LIM1215 lib.	-	+	-	+	& -
RT-PCR product	NO	-	+	NO	NO
53.2 cDNA	-	-	-	-	+
					NO

Fig. 7B



222
Y 5'-CCAGGTG|ggcctc

223
gcaggtg|TCCTGCC-3'

1950
1 5'-AAAGAGG|GTGGCTG.....AACAGAA|GCCGAGC-3'

2130
a 5'-TGCAAG|gtggatg.....ccccag|GACAGGC-3'

2286
b 5'-GAGCCAC|gtctcta.....ggggcaa|GTCCTAC-3'

2843
2 5'-ACTCCAG|GTGAGCG.....XXXXXX|CTATGCC-3'

3157
3 5'-AACGCAG|CCGAAGAAAACATTTCTGTCGTGACTCCTGCGGTGCTTGGGTCGGGACAGCCAGAGATGG
T A A E E N I L V V T P A V L G S G Q P E M E
AGCCACCCCGCAGACCGTCGGGTGTGGGCAGCTTTCCGGTGTCTCCTGGGAGGGGAGTTG
P P R R P S G V G S F P V S P G R G V G
3158
GGCTGGGCCTGTGACTCCTCAGCCTCTGTTTTCCCCCAG|GGATGTC-3'
L G L *

Fig. 7C

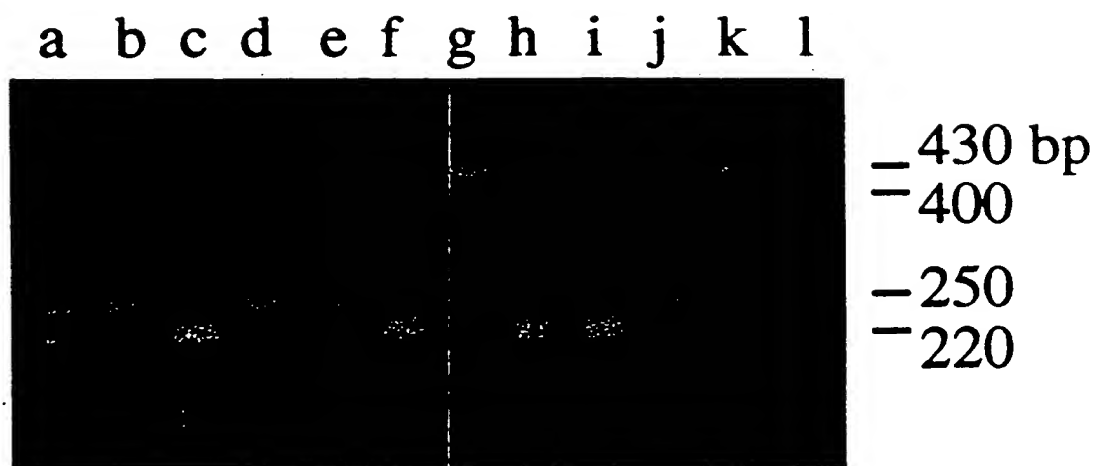


Fig. 8



GACGTGGAAGATGAGCGTGGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTTGGCTGTGTTCCGGCCGAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L
GATGAGTGTGTACGTCGTCGAGTGTCTCAGGTCTTTCTTTATGTACGGAGACCAGTTCAAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G
AATCAGACAGCACTTGAAGAGGGTGACGTGCGGGAGCTGTCGGAAGCAGAGGTACGGCAGCATCGGAAGCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D
CGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E
GCGGGCGCGGCCCGGCTCCTGGGCGCTCTGTGCTGGGCTGGACGATATCCAGGGGCTGGCGCACCTTCGTGCTGCGTGTCGGGGCCAGGACCCGCGCTGAGTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F
TGTAAGGTGGATGTACGGGCGGTACGACCATCCCCAGGACAGGCTCACGGAGGTATCGCCAGCATCATAAACCCAGAACACGTACTGCGTGGTGGTATGCCGTGGTCCA
V K V D V T G A Y D T I P Q D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q
GAAGGCCGCCATGGGCACGTCCGCAAGGCCCTCAAGAGCCAC
K A A H G H V R K A F K S H

GTCTACGTCCAGTG
V L R P V

CCAGGGGATCCCGAGGGCTCCATCCTCTCCACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTCGGGGATTGCGGGGACGGGCTGCTCTGCGTTTGGTGG
P G D P A G L H P L H A A L Q P V L R R H G E Q A V C G D S A G R A A P A F G G
TGATTTCTGTTGGTGACCTCACCTACCCACGCGAAAACCTTCTCAGGACCTGGTCCGAGGTGTCCTGAGTATGGCTGCGTGGTGAAC TTGCGGAAGACAGTGGTGAAC TTCCC

*

Fig. 11AA



Reference protein (ver. 2)

ATGCCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAG 60
MetProArgAlaProArgCysArgAlaValArgSerLeuLeuArgSerHisTyrArgGlu 20

GTGCTGCCGCTGGCCACGTTCTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAG 120
ValLeuProLeuAlaThrPheValArgArgLeuGlyProGlnGlyTrpArgLeuValGln 40

CGCGGGGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCAGTGCCTGGTGTGCGTGCCCTGG 180
ArgGlyAspProAlaAlaPheArgAlaLeuValAlaGlnCysLeuValCysValProTrp 60

GACGCACGGCCGCCCCCGCCGCCCCCTCCTTCGCCAGGTG
AspAlaArgProProProAlaAlaProSerPheArgGlnVal

GGCCTCCCCGGGGTCGGCGTCCGGCTGGGGTTGAGGGCGGCCGGGGGAACCAGCGACATGCGGAG
G L P G V G V R L G L R A A G G N Q R H A E
A S P G S A S G W G * G R P G G T S D M R R
P P R G R R P A G V E G G R G E P A T C G E

AGCAGCGCAGGCGACTCAGGGCGCTTCCCCCGCAGGTG
S S A G D S G R F P R R
A A Q A T Q G A S P A G
Q R R R L R A L P P Q V

TCCTGCCTGAAGGAGCTG 240
SerCysLeuLysGluLeu 80

GTGGCCCGAGTGCTGCAGAGGCTGTGCGAGCGCGGCGGAAGAACGTGCTGGCCTTCGGC 300
ValAlaArgValLeuGlnArgLeuCysGluArgGlyAlaLysAsnValLeuAlaPheGly 100

TTGCGCTGCTGGACGGGGCCCGGGGGCCCCCGAGGCCTTACCACCAGCGTGCGC 360
PheAlaLeuLeuAspGlyAlaArgGlyGlyProProGluAlaPheThrThrSerValArg 120

AGCTACCTGCCCCAACACGGTGACCGACGCACTGCGGGGAGCGGGGCGTGGGGGCTGCTG 420
SerTyrLeuProAsnThrValThrAspAlaLeuArgGlySerGlyAlaTrpGlyLeuLeu 140

TTGCGCCGCTGGGCGACGACGTGCTGGTTACCTGCTGGCACGCTGCGCGCTCTTTGTG 480
LeuArgArgValGlyAspAspValLeuValHisLeuLeuAlaArgCysAlaLeuPheVal 160

CTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCGCTGTACCAGCTCGGCGCT 540
LeuValAlaProSerCysAlaTyrGlnValCysGlyProProLeuTyrGlnLeuGlyAla 180

GCCACTCAGGCCCCGGCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAA 600
AlaThrGlnAlaArgProProProHisAlaSerGlyProArgArgArgLeuGlyCysGlu 200

Fig. 11AB

CGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGT	660
ArgAlaTrpAsnHisSerValArgGluAlaGlyValProLeuGlyLeuProAlaProGly	220
GCGAGGAGGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCAAGAGGCCCAGGCGT	720
AlaArgArgArgGlyGlySerAlaSerArgSerLeuProLeuProLysArgProArgArg	240
GGCGCTGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCTGGGCCACCCGGGC	780
GlyAlaAlaProGluProGluArgThrProValGlyGlnGlySerTrpAlaHisProGly	260
AGGACGCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTACCTGCCAGACCCGCCGAA	840
ArgThrArgGlyProSerAspArgGlyPheCysValValSerProAlaArgProAlaGlu	280
GAAGCCACCTCTTTGGAGGGTGCCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGC	900
GluAlaThrSerLeuGluGlyAlaLeuSerGlyThrArgHisSerHisProSerValGly	300
CGCCAGCACACGCGGGCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCT	960
ArgGlnHisHisAlaGlyProProSerThrSerArgProProArgProTrpAspThrPro	320
TGTCCCCCGGTGTACGCCGAGACCAAGCACTTCTCTACTCCTCAGGCGACAAGGAGCAG	1020
CysProProValTyrAlaGluThrLysHisPheLeuTyrSerSerGlyAspLysGluGln	340
CTGCGGCCCTCCTTCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTC	1080
LeuArgProSerPheLeuLeuSerSerLeuArgProSerLeuThrGlyAlaArgArgLeu	360
GTGGAGACCATCTTTCTGGGTTCAGGCCCTGGATGCCAGGGACTCCCCGAGGTTGCCC	1140
ValGluThrIlePheLeuGlySerArgProTrpMetProGlyThrProArgArgLeuPro	380
CGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCTGTTTCTGGAGCTGCTTGGGAACCAC	1200
ArgLeuProGlnArgTyrTrpGlnMetArgProLeuPheLeuGluLeuLeuGlyAsnHis	400
GCGCAGTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCCTGCGAGCTGCGGTACCC	1260
AlaGlnCysProTyrGlyValLeuLeuLysThrHisCysProLeuArgAlaAlaValThr	420
CCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCGAGGAG	1320
ProAlaAlaGlyValCysAlaArgGluLysProGlnGlySerValAlaAlaProGluGlu	440
GAGGACACAGACCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCTGGCAG	1380
GluAspThrAspProArgArgLeuValGlnLeuLeuArgGlnHisSerSerProTrpGln	460
GTGTACGGCTTCGTGCGGGCCTGCCTGCGCCGGCTGGTGCCCCAGGCCTCTGGGGCTCC	1440
ValTyrGlyPheValArgAlaCysLeuArgArgLeuValProProGlyLeuTrpGlySer	480
AGGCACAACGAACGCCGCTTCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCAT	1500
ArgHisAsnGluArgArgPheLeuArgAsnThrLysLysPheIleSerLeuGlyLysHis	500
GCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTG	1560
AlaLysLeuSerLeuGlnGluLeuThrTrpLysMetSerValArgAspCysAlaTrpLeu	520



Fig. 11AC

CGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATC	1620
ArgArgSerProGlyValGlyCysValProAlaAlaGluHisArgLeuArgGluGluIle	540
CTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTC	1680
LeuAlaLysPheLeuHisTrpLeuMetSerValTyrValValGluLeuLeuArgSerPhe	560
TTTTATGTCACGGAGACCACGTTTCAAAGAAGCAGGCTCTTTTCTACCGGAAGAGTGTC	1740
PheTyrValThrGluThrThrPheGlnLysAsnArgLeuPhePheTyrArgLysSerVal	580
TGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTGAAGAGGGTGCAGCTGCGGGAG	1800
TrpSerLysLeuGlnSerIleGlyIleArgGlnHisLeuLysArgValGlnLeuArgGlu	600
CTGTCGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGA	1860
LeuSerGluAlaGluValArgGlnHisArgGluAlaArgProAlaLeuLeuThrSerArg	620
CTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGGCGATTGTGAACATGGACTACGTCGTG	1920
LeuArgPheIleProLysProAspGlyLeuArgProIleValAsnMetAspTyrValVal	640
GGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCA	1980
GlyAlaArgThrPheArgArgGluLysArgAlaGluArgLeuThrSerArgValLysAla	660
CTGTTACAGCGTGCTCAACTACGAGCGGGCGGGCGCCCCGGCCTCCTGGGCGCCTCTGTG	2040
LeuPheSerValLeuAsnTyrGluArgAlaArgArgProGlyLeuLeuGlyAlaSerVal	680
CTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAG	2100
LeuGlyLeuAspAspIleHisArgAlaTrpArgThrPheValLeuArgValArgAlaGln	700
GACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATC	2160
AspProProProGluLeuTyrPheValLysValAspValThrGlyAlaTyrAspThrIle	720
CCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATAAACCCAGAACACGTACTGC	2220
ProGlnAspArgLeuThrGluValIleAlaSerIleIleLysProGlnAsnThrTyrCys	740
GTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAG	2280
ValArgArgTyrAlaValValGlnLysAlaAlaHisGlyHisValArgLysAlaPheLys	760
AGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTG	2340
SerHisValSerThrLeuThrAspLeuGlnProTyrMetArgGlnPheValAlaHisLeu	780
CAGGAGACCAGCCCGCTGAGGGATGCCGTGTCATCGAGCAGAGCTCCTCCCTGAATGAG	2400
GlnGluThrSerProLeuArgAspAlaValValIleGluGlnSerSerSerLeuAsnGlu	800
GCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATC	2460
AlaSerSerGlyLeuPheAspValPheLeuArgPheMetCysHisHisAlaValArgIle	820
AGGGGCAAGTCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTG	2520
ArgGlyLysSerTyrValGlnCysGlnGlyIleProGlnGlySerIleLeuSerThrLeu	840



Fig. 11AD



CTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTTCGGCGGGAC LeuCysSerLeuCysTyrGlyAspMetGluAsnLysLeuPheAlaGlyIleArgArgAsp	2580 860
GGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTACCCACGCG GlyLeuLeuLeuArgLeuValAspAspPheLeuLeuValThrProHisLeuThrHisAla	2640 880
AAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACCTG LysThrPheLeuArgThrLeuValArgGlyValProGluTyrGlyCysValValAsnLeu	2700 900
CGGAAGACAGTGGTGAACCTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGT ArgLysThrValValAsnPheProValGluAspGluAlaLeuGlyGlyThrAlaPheVal	2760 920
CAGATGCCGGCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGACCCTG GlnMetProAlaHisGlyLeuPheProTrpCysGlyLeuLeuLeuAspThrArgThrLeu	2820 940
GAGGTGCAGAGCGACTACTCCAGCTATGCCCCGACCTCCATCAGAGCCAGTCTCACCTTC GluValGlnSerAspTyrSerSerTyrAlaArgThrSerIleArgAlaSerLeuThrPhe	2880 960
AACCGCGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTG AsnArgGlyPheLysAlaGlyArgAsnMetArgArgLysLeuPheGlyValLeuArgLeu	2940 980
AAGTGTCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAAC LysCysHisSerLeuPheLeuAspLeuGlnValAsnSerLeuGlnThrValCysThrAsn	3000 1000
ATCTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCA IleTyrLysIleLeuLeuLeuGlnAlaTyrArgPheHisAlaCysValLeuGlnLeuPro	3060 1020
TTTCATCAGCAAGTTTGAAGAACCCACATTTTTCTGCGCGTCATCTCTGACACGGCC PheHisGlnGlnValTrpLysAsnProThrPhePheLeuArgValIleSerAspThrAls	3120 1040
TCCCTCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAAGGGC SerLeuCysTyrSerIleLeuLysAlaLysAsnAlaGlyMetSerLeuGlyAlaLysGly	3180 1060
GCCGCCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCTGCTC AlaAlaGlyProLeuProSerGluAlaValGlnTrpLeuCysHisGlnAlaPheLeuLeu	3240 1080
AAGCTGACTCGACACCGTGTACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAG LysLeuThrArgHisArgValThrTyrValProLeuLeuGlySerLeuArgThrAlaGln	3300 1100
ACGCAGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGAGCCAAC ThrGlnLeuSerArgLysLeuProGlyThrThrLeuThrAlaLeuGluAlaAlaAlaAsn	3360 1120
CCGGCACTGCCCTCAGACTTCAAGACCATCCTGGAC ProAlaLeuProSerAspPheLysThrIleLeuAsp	3420 1132

Fig. 11AE



Truncated protein 3 (ver. 2)

ATGCCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCAGGTGCTGCCGCTGGCCACGTTCTGT
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGCTGGTGCAGCGGGGACCCGGCGCTTTCCGCGCGCTGGTGGCCAGTGCCTGGTGTGCGTGCCCTGGGACGCACGGCCGCCCCCGCCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCCTCCCCGGGTGCGCTCCGGCTGGGGTTGAGGGCGCCGGGGGAACAGCGACATGCGGAGAGCAGCGCAGGCGACTCAGGGCGCTTCCCCCGAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCGAGTGTCTGCTGAAGGAGCTGGTGGCCGAGTGTGCAGAGGCTGTGCGAGCGGGCGGAAGAAGTGTGCTGGCTTCCGCTTCCGCTGCTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGCAGCTACCTGCCAACAGGTGACGACGCACTGCGGGGAGCGGGCGTGGGGCTGCTGCTGCGCGGTGGGACGACGCT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTACCTGCTGGCAGCTGCGCGCTTTTGCTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGCGGGCGCCGCTGTACCAGCTCGGCGTGCCTACTCAGGCCGGCCCCCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGACCCGAAGCGCTCTGGATGCGAAGCGGCTGGAACATAGCGTCAGGAGGCGGGGTCCCCCTGGGCTGCCAGCCCGGGTGGAGGAGGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCGTTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACCGCGTTGGGAGGGGTCTGGGCCACCCGGGACGCGTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGGTGTACCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGAGGGTGCCTCTCTGCGACGCGCCACTCCACCCATCCGTGGGCGCCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCAGTCCCTGGGACAGCCTTGTCCCCGGGTGACGCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGCTGCGGCCCTCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGGCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATTTCTGGGTTCAGGCCCTGGATGCCAGGACTCCCGCAGGTTGCCCCGCTGCCACGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATCGGCCCCCTGTTCTGGAGTGTCTGGGAACACGCGAGTGCCCTACGGGGTGTCTCTCAAGACGCACTGCCGCTGCGAGTGCAGTCAACCCAGCAGCGGTGTCTGTGCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCCAGGCTCTGTGGCGGCCCCGAGGAGGAGACAGACCCCGTCCGCTGGTGCAGTGTCTCGGCCAGCAGCAGCCCTGGCAGGTGTACGGCTTCTGTGGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCAGGCTCTGGGGCTCCAGGCACAACGAAGCGCTTCTCAGGAACACCAAGATTCTCTCTGGGGAAGCATGCCAAGCTCTGCTGCAGGAGT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11AF



GACGTGGAAGATGAGCGTGGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTGGCTGTGTTCCGGCCGAGAGCACCCTGCGTGAGGAGATCCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGTGCTGAGCTGCTCAGGCTTTTCTTTTATGTACGGAGACCAGCTTTCAAAGAAGAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTCAAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

AATCAGACAGCACTTGAAGAGGTGAGCTGCGGGAGCTGTGGAAGCAGAGGTGAGCAGCATCGGAAGCCAGGCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCAAGCCTGA
I R O H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

CGGGCTGCGGCCGATTGTGAACATGGAAGTACGTGCTGGGAGCCAGAAGCTTCGAGAGAAAAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTGAGCGTGTCAACTAGGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GCGGGCGGGGCCGCCGCTCTGGGGCCTCTGTGCTGGGCTGGACATATCCAGGGCTGGGCGACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCGCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTCAAGGTGGATGTGACGGGCGGTACGACACCATCCCCAGGACAGGCTACGGAGGTGATCGCCAGCATCAAAACCCAGAACAGTACTGCGTGGCTGGTATGCCGTGGTCCA
V K V D V T G A Y D T I P Q D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAGGGCGGCCATGGGCAGCTCCGCAAGGCTTCAAGAGCCAGTCTCTACCTTGACAGACCTCCAGCGGTACATGCGACAGTTCGTGGCTCACCTGAGGAGACCAGCCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D

TGCCGTGTCATGAGCAGAGCTCCTCCCTGAATGAGGCCAGCAGTGGCCTCTTCGAGCTTCTCTACGCTTCATGTGCCACCAGCCGTGCGCATCAGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C

CCAGGGGATCCCGAGGGCTCCATCCTCTCCAGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTCCGGGGATTCCGGGGAGCGGCTGCTCCTGCGTTTGGTGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D

TGATTTCTTGTGGTGACCTCACCTCACCCAGCGAAACCTTCTCAGGACCTGGTCCGAGGTGTCCTGAGTATGGCTGCGTGGTGAACCTGCGGAAGACAGTGGTGAACCTCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P

TGTAGAAGACGAGGCCCTGGGTGGCAGGCTTTTGTTCAGATGCCGGCCACGGCTATTCCCTGGTGGGCTGCTGCTGGATACCCGGACCTGGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S R

GTGAGCGCACCTGGCCGGAAGTGAGCCTGTGCCGGCTGGGGCAGGTGCTGCTGACGGGCCGTTGGCTCCACCTGTGCTTCCGTGTGGGGCAGGCACTGCCAATCCCAAGGGTCAGA
*

TGCCACAGGGTGCCCTCGTCCCATCTGGGGCTGAGCACAAATGCATCTTTCTGTGGAGTGAGGGTGCTCACAACGGGAGCAGTTTTCTGTGCTATTTTGGTAA....

Fig. 11AG



Altered C-terminus protein (ver. 2)

ATGCCGCGCGTCCCCGCTGCCGAGCCGTCGCTCCCTGCTGCCGAGCCACTACCGGAGGTGCTGCCGCTGGCCACGTTCTGT
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGACGCGGGGACCCGGCGGCTTTCCGCGCGTGGTGCCCACTGCTGGTGCGTGCCCTGGGACGACGGCCGCCCCCGCCG
R R L G P O G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCTCCCCGGGTGCGCTCCGGTGGGTTGAGGGCGGGGGGAACAGCGACATGCGGAGAGCAGCGAGGCGACTCAGGGCGCTTCCCCCGAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCAAGTGTCTGCTGAAGGAGCTGGTGGCCCGAGTGTGACAGGCTGTGCGAGCGCGCGGAAGAAGCTGCTGGCTTCGGCTTCGCGCTGCTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCGAGCTACCTGCCCAACAGGTGACCGAGCGACTGCGGGGAGCGGGCGTGGGGCTGCTGCTGCCCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTCACCTGCTGGCAGCTGCGCGCTTTTGCTGGTGGCTCCAGCTGCGCTACCAGGTGTGCGGGCCCGCTGTACCAGCTCGGCGTGGCACTCAGGCCCGCCCCCGCC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACAGCTAGTGGACCCGAAGCGTCTGGATGCGAAGCGGCTGGAACATAGCGTCAGGAGGGCGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCGTTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACCGCGTTGGGCAAGGGTCTGGGCCACCCGGGAGGACGCGTGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGGTGTACCTGCCAGACCCCGGAAGGCCACTCTTTGGAGGGTGGCTCTGTGGCAGCGCCACTCCACCCATCGTGGGCGCGCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGGGCCACCAGTCCCTGGGACAGCCTTGTCCCCGGGTGACGCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGCCCTCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATTTTGGGTTCCAGGCCCTGGATGCCAGGACTCCCCGAGGTGCCCCGCTGCCCGAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCTGTTTCTGAGCTGCTTGGGAACACGCGAGTCCCTACGGGTGCTCCTCAAGAGCACTGCCGCTGCGAGCTGCGGTACCCAGCAGCGGTGCTGTGCCCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCCAGGCTCTGTGGCGCCCCGAGGAGGACACAGACCCCGTCCGCTGGTGACGCTGCTCCGCGAGCAGCAGCCCCCTGGCAGGTGTACGGTCTGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCCGAGCCTCTGGGGCTCCAGGCACAACGAACGCGCTTCTCAGGAACCAAGAAGTTTCATCTCCCTGGGGAAGCATGCCAAGCTCTGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11AH



GACGTGGAAGATGAGCGTGGGACTGCGCTTGGCTGCCAGGAGCCAGGGGTGGCTGTGTTCGGCCGAGAGCACCCTGCGTGAGGAGATCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L
GATGAGTGTGACGTCGTCGAGCTGCTCAGGTCTTTCTTTATGTACGGAGACCACGTTTCAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTGTCAAAGCATTG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G
AATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGAGCTGTGGAAGCAGAGGTACGGCAGCATCGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D
CGGGCTGCGGCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAAGTTCGCGAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTCTCAACTAGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E
GCGGGCGCGGCGCCCGGCTCTGGGCGCTCTGTGCTGGGCTGGACGATATCCAGAGGCTGGGCGACCTTCGTGCTGCGTGCGGGCCAGGACCCGCGCTGAGCTGACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F
TGTAAGGTGGATGTGACGGGCGGTACGACACCATCCCCAGGACAGGCTCACGGAGGTATCGCCAGCATCATAAACCCAGAACAGTACTGCGTGGTGGTATGCCGTGGTCCA
V K V D V T G A Y D T I P Q D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q
GAAGGCCGCCATGGGACGTCGCAAGGCTTCAAGAGCCAGCTCTACCTTGACAGACCTCCAGCGTACATGCCAGTTCGTGGCTCACCTGAGGAGACAGCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D
TGCGTCTGTCAGCAGAGCTCCTCCTGAATGAGGCCAGCAGTGGCTCTTCGACGTCTTCTACGTTTCATGTGCCACCAGCCGTGCCATCAGGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C
CCAGGGGATCCCGAGGGCTCCATCCTCTCAGCTGCTCTGACGCTGTGCTACGGGACATGGAGAACAAGCTGTTTGGGGGATTGCGGGGACGGGCTGCTCCTGCGTTTGGTGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D
TGATTTCTTGTGGTGACACCTCACCTCACCCAGCGAAAACCTTCTCAGGACCTGGTCCGAGGTGCTCCTGAGTATGGCTGCGTGGTGAACCTGCGGAAGACAGTGGTGAACCTCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P
TGTAAGACGAGGCCCTGGGTGGCAGGCTTTTGTTCAGATGCCGGCCACGGCTATTCCCTGGTGGGCTGCTGCTGGATACCGGACCTGGAGGTGCAGAGCAGTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S S
CTATGCCCGACCTCCATCAGAGCCAGTCTACCTTCAACCGCGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGGCGTGAAGTGTACAGCCTGTTTCTGGA
Y A R T S I R A S L T F N R G F K A G R N M R R K L F G V L R L K C H S L F L D
TTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTACAAGATCCTCTGCTGCAGGGCTACAGGTTTACGCATGTGTGCTGCAGCTCCCATTTTCATCAGCAAGTTTGAAGAA
L Q V N S L Q T V C T N I Y K I L L L Q A Y R F H A C V L Q L P F H Q Q V W K N
CCCCACATTTTCTGCGGTGATCTCTGACAGGCTCCTCTGCTACTCATCTGAAAGCCAGAACGAGGGATGTGCTGGGGGCCAAGGGCGCCGCGGCTCTGCCCTCCGA
P T F F L R V I S D T A S L C Y S I L K A K N A E

CCGAAGAAAACATTTCTGCTGACTCCTGCGGTGCTTGGGTC
E E N I L V V T P A V L G S

GGGACAGCCAGAGATGGAGCCACCCCGAGACCGTGGGTGTGGGAGCTTTCGGGTGCTCTGCGGAGGGAGTTGGGCTGGGCTGTGACTCCTCAGCCTCTGTTTCCCCCAG
G Q P E M E P P R R P S G V G S F P V S P G R G V G L G L *

Fig. 11AI



Protein that lacks motif A (ver. 2)

ATGCCGCGCGCTCCCGCTGCCGAGCGTGGCGTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGTGCCACGTTCCGT
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGTGGTGCAGCGCGGGGACCGCGGCTTTCCGCGCTGGTGGCCAGTGCCTGGTGTGCGTGCCTGGGACGACGGCCGCCCGCCCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCCTCCCCGGGGTCGGCGTCCGGCTGGGGTTAGGGCGGCCGGGGGAACAGCGACATGCGGAGAGCAGCGCAGGCGACTCAGGGCGCTTCCCCCGAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCCAGGTGCTCTGCTGAAGGAGCTGGTGGCCGAGTGTGCAGAGCTGTGCGAGCGCGCGCGAAGAACGTGTGGCTTCGGCTTCGCGCTGCTGGACGGGGCCCC
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCGAGTACCTGCCAACACGGTGACCGACACTGCGGGGAGCGGGGCGTGGGGGCTGCTGCTGCCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTACCTGCTGGCAGCTGCGCGCTCTTTGTGCTGGTGGCTCCAGCTGCGCCTACAGGTGTGCGGGCGCGCGTGTACCAGCTGCGGCTGCCACTCAGGCCCGGGCCCCGCC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAAGGCGTCTGGGATGCGAACGGGCTGGAACCATAGCGTCAGGGAGGCGGGGTCCCCCTGGGCTGCCAGCCCCGGTGCGAGGAGGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTCTGCCGTTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACGCCGTTGGGAGGGGTCTGGGCCACCCGGGAGGACGCGTGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGGTGTACCTGCCAGACCCGCCAAGAAGCCACCTCTTTGGAGGGTGGCTCTCTGGCAGCGCCACTCCACCCATCCGTGGGCGCGCAGCACCACGGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGCCACCAGTCCCTGGGACAGCGCTTGTCCCCGGGTACGCCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGCCCTCTTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTGAGGCCAGCCTGACTGGCGCTGGGAGGCTCGTGGAGACCATCTTTCTGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGAGGTTGCCCGCCTGCCCGAGCGTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCCCTTTCTGGAGCTGCTGGGAACACGCGCAGTGCCCCACGGGGTGTCTCAAGACGCACTGCCGCTGCGAGCTGCGGTACCCCAGCAGCGGTGTCTGTGCCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCCAGGCTCTGTGGCGGCCCGAGGAGGAGACAGACCCCGTGGCTGGTGCAGCTGCTCCGCGACACAGCAGCCCTGGCAGGTGTACGGCTTCTGTGGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

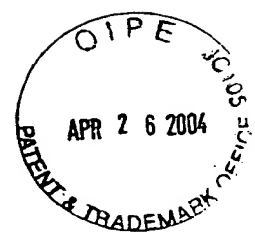
CCTGCGCGGCTGGTGGCCCCAGGCTCTGGGGCTCCAGGCACAACGAACGCGCTTCTCAGGAACACCAAGATTCTCTCTGGGAAGCATGCCAAGCTCTCGTGCAGGAGT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11AJ



GACGTGGAAGATGAGCTGCGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTTGGCTGTGTTCCGGCCGAGAGCACCCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L
GATGAGTGTGTACGTGCTGAGCTGCTCAGGTCTTTCTTTATGTACGAGAGACCAGTTTCAAAGAACAGGCTCTTTTCTACCGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G
AATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGAGGTGAGCAGCATCGGAAGCCAGGCCCGCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D
CGGGCTGCGGCCGATTGTGAACATGGACTACGTGCTGGAGCCAGAACGTTCCGAGAGAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E
GCGGGCGCGGCCCGGCTCTGCTGGGCGCTGCTGCTGGGCGTGGACGATATCCAGAGGCGTGGCGCACCTTCGTGCTGCTGTGCGGGCCAGGACCCCGCGCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F
TGCAAG
V K
GACAGGCTCAGGAGGTGCTGCGCAGCATCATCAACCCAGAACAGTACTGCGTGCGTGGTATGCCGTGGTCCA
D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q
GAAGCCGCCCATGGGACGTCGCAAGGCTTCAAGAGCCAGTCTCTACCTTGACAGACCTCCAGCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D
TGCCGTGTCATGAGCAGAGTCTCTCCTGAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCTACGCTTCATGTGCCACCACGCCGTGGCATCAGGGCAAGCTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C
CCAGGGATCCCGAGGGCTCCATCCTCTCCAGCTGCTCTGCAGCCTGTGCTACGGCAGATGGAGAACAAGCTGTTTGGGGGATTGCGGGGACGGGCTGCTCCTGCGTTTGGTGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D
TGATTTCTTGTGGTGACACCTCACCTCACCCACGCGAAACCTTCTCAGGACCTGGTCCGAGGTGCTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAAGACAGTGGTGAACITCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P
TGTAAGACGAGGCCCTGGGTGGCAGGCTTTTGTTCAGATGCCGGCCACGGCTATTCCCTGGTGGGCTGCTGCTGGATACCGGACCTGGAGGTGCAGAGCAGTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S S
CTATGCCCGACCTCCATCAGAGCAGTCTCACCTTCAACCGCGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGGCGTGAAGTGTACAGCCTGTTTCTGGA
Y A R T S I R A S L T F N R G F K A G R N M R R K L F G V L R L K C H S L F L D
TTTGAGGTGAACAGCCTCAGAGCGGTGTGCACCAACATCTACAAGATCCTCTGCTGACAGCGTACAGGTTTACGCATGTGTGCTGCAGTCCCATTTATCAGCAAGTTTGAAGAA
L Q V N S L Q T V C T N I Y K I L L L Q A Y R F H A C V L Q L P F H Q Q V W K N
CCCCATTTTTCTGCGGTATCTCTGACAGGCTCCCTCTGCTACTCCATCCTGAAAGCCAAGAAGCAGGGATGTGCTGGGGCCAAGGGCGCCGCGGCTCTGCCCCCGGA
P T F F L R V I S D T A S L C Y S I L K A K N A G M S L G A K G A A G P L P S E
GGCGGTGACGTGGCTGTGCCACCAAGCATTCTGCTCAAGCTGACTCGACACCGTGTACCTACGTGCCACTCTGGGGTCACTCAGGACAGCCAGACGAGCTGAGTCGGAAGCTCCC
A V Q W L C H Q A F L L K L T R H R V T Y V P L L G S L R T A Q T Q L S R K L P
GGGACGAGCTGACTGCCCTGGAGGCGCAGCCAACCCGGCACTGCCCTCAGACTTCAAGACCATCTGGACTGATGGCCACCCGCCACAGCCAGGCCGAGAGCAGACACGAGCAGCC
G T T L T A L E A A A N P A L P S D F K T I L D

Fig. 11AK



CTGTCACGCCGGGCTCTACGTCCAGGGAGGGAGGGGGGCCACACCCAGGCCCGCACCGCTGGGAGTCTGAGGCCTGAGTGAGTGTTTGGCCGAGGCCTGCATGTCCGGCTGAAGGCT
GAGTGTCGGGCTGAGGCCTGAGCGAGTGTCAGCCAAGGGCTGAGTGTCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCAGGGCCAGCTTTTCCTCAC
CAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATCCCCAGATTGCCATTGTTACCCCTCGCCCTGCCCTCCTTTGCCCTCCACCCCACTCCAGGTGGAGACCTGAGAA
GGACCCTGGGAGCTCTGGGAATTTGGAGTGACCAAAGGTGTGCCCTGTACAGGCGAGGACCTGCACCTGGATGGGGTCCCTGTGGGTCAAATTGGGGGAGGTGCTGTGGGAGTAA
AATACTGAATATATGAGTTTTTCAGTTTTGA

Fig. 11AL



Truncated protein that lacks motif A (ver. 2)

ATGCCGCGCGCTCCCCGCTGCCGAGCGTGCCTCCCTGCTGCCGAGCACTACCGGAGGTGCTGCCGCTGGCCACGTTCTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGTGGTGCAGCGCGGGGACCCGGCGCTTTCGCGCGCTGGTGGCCAGTGCCTGGTGTGCGTGCCTGGGACGCACGCGCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCCTCCCCGGGTGCGCTCCGGCTGGGGTTGAGGGCGCGGGGGGAACAGCGACATGCCGAGAGCAGCGAGGCACTCAGGGCGCTTCCCCCGCAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCCAGGTGCTGCTGAAGGAGTGGTGGCCGAGTGTGCAGAGCTGTGCCGAGCGCGCGAAGAAGCTGCTGGCCTTCGGCTTCGCGCTGCTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACCAGCGTGCAGCTACCTGCCCAACAGGTGACCGACGCACTCGGGGGAGCGGGGCTGGGGGCTGCTGCTGCCGCGCTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTCACCTGCTGCCAGCTGCGCGCTTTTGTGCTGGTGGCTCCAGCTGGCGCTACCAGGTGTGCGGGCGCGGCTGTACCAGCTCGGCGCTGCCACTCAGGCCCGGGCCCCCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAAGCGCTCTGGGATGCCAAGCGGCTGGAACCATAGCGTCAGGGAGCGGGGTCCCCCTGGGCTGCCAGCCCCGGTGGCAGGAGCGCGGGGCGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCCGTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACGCCGTTGGGCAGGGGTCTGGGCCACCCGGGAGGACGCGTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGTGTACCTGCCAGACCCGCCAAGAAGCACCTTTTGGAGGGTGGCTCTTGGCAGCGGCACTCCACCCATCCGTGGGCGGCCAGCACCACGGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCGCTCCCTGGGACAGCGCTTGTCCCCGGTGTACGCCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGCTGCGGCCCTCCTTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTGAGGCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGAGGTTGCCCCGCTGCCCGAGCCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCTGTTTCTGGAGCTGCTTGGGAACACGCGAGTGCCCTACGGGGTGTCTCTAAGACGCACTGCCCGTGGGAGCTGCGGTACCCGAGCAGCGGTGCTGTGCCCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCCAGGCTCTGTGGCGGGCCCCGAGGAGGACACAGACCCCGTGGCTGGTGCAGTGTCTCGCCAGCAGCAGCCCCCTGGCAGGTGTACGGCTTCTGCGGGCGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTCCCCAGGCTCTGGGGCTCAGGCACAACGAACCGCGCTTCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11AM



GACGTGGAAGATGAGCGTGCAGGACTGCGCTTGCTGCGCAGGAGCCAGGGGTGGCTGTGTTCGGCCGAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGTGCTCGAGCTGCTCAGGTCTTTCTTTATGTACGGAGACCACGTTTCAAAGAAGAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

AATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGAGCTGTGGAAGCAGAGGTGAGGAGCATCGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

CGGGCTGCGGCCGATTGTGAACATGGACTACGTGCTGGGAGCCAGAAGTTCCGAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTGAGCGTGTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GCGGGCGCGGCCCGCCCTCCTGGGCGCTCTGTGCTGGGCTGGAGATATCCAGAGGCCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCCCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTCAGG
V K

GACAGGCTCACGGAGGTCATCGCCAGCATCATAAACCCAGAACACGTAAGTGTGCGTGTGCGTGTGCGGGCCAGGACCCGCCCTGAGCTGTACTT
D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAAGGCCGCCATGGGCACGTCCGCAAGGCCCTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGGCCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D

TGCGTGTGTCATCGAGCAGAGCTCCTCCTGAATGAGGCCAGTGGCCCTTTCGAGCTTCTCTACGTTCTATGTGCCACCAGCCGTGCGCATCAGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C

CCAGGGGATCCCGCAGGGCTCCATCCTCTCCAGCTGCTCTGACGCTGTGCTACGGCAGATGGAGAACAAGCTGTTTTCGGGGATTGCGGGGACGGGCTGCTCCTGCGTTTGGTGGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D

TGATTCTTGTGGTGACACCTCACCTCACCCACGGGAAAACCTTCTCAGGACCTGGTCCGAGGTGTCCTGAGTATGGCTGCGTGGTGAAGTTGCGGAAGACAGTGGTGAAGTCCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P

TGTAGAAGACGAGGCCCTGGGTGGCAGCGCTTTTGTTCAGATGCCGGCCACGGCTATTCCCTGGTGGGCTGCTGCTGGATACCCGACCTGGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S R

GTGAGCGCACCTGGCCGGAAGTGGAGCCTGTGCCGGCTGGGGCAGGTGCTGCTGACGGGCCGTTGCGTCCACCTCTGCTTCCGTGTGGGCGAGGCACTGCCAATCCCAAGGGTCAGA
*

TGCCACAGGGTGCCCTCGTCCATCTGGGGCTGAGCACAAATGCATCTTTCTGTTGGAGTGAGGGTGCTCACAACGGGAGCAGTTTTCTGTGCTATTTTGGTAA.....

Fig. 11AN



Lacks motif A and altered C-terminus (ver. 2)

ATGCCGCGGCTCCCCGCTGCCGAGCGGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGCCAGTTCGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGGGGACCGCGGCTTTCCGCGGCTGGTGGCCAGTGCCTGGTGTGCGTGCCTGGGACGCACGGCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCCTCCCCGGGTGCGGCTCCGGCTGGGGTTGAGGGCGCGGGGGGAACAGCGACATGCGGAGAGCAGCGCAGGGGACTCAGGGCGCTTCCCCCGCAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTTCGCCAGGTGCTGCTGAAGGAGCTGGTGGCCGAGTGTGCAGAGGCTGTGCGAGCGCGCGCAAGAACGTGCTGGCCTTCGGCTTCGCGCTGCTGGACGGGGCCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCAGCTACCTGCCAACAGGTGACCGACGACTCGGGGGAGCGGGGCTGGGGGCTGCTGCTGCCCGCGCTGGGCGACGAGCT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTACCTGCTGGCAGCTGCGCGCTTTTGTGCTGGTGGCTCCAGCTGCGCTACCAGGTGTGCGGGCGCGGCTGTACCAGCTCGGCGCTGCCACTCAGGCCGGGCCCCCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGACCCGAAGCGCTCTGGGATGCGAACGGGCTGGAACCATAGCGTCAGGGAGCGGGGCTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGGCGCGGGGCGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCCGTTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACCGCGTTGGGCAAGGGTCTGGGCCACCGGGGAGGACGCTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGGTGTACCTGCCAGACCGCGGAAGGCCACCTTTTGGAGGGTGGCTCTGTGCGACGCGGCACTCCACCCATCCGTGGGCGCGCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGGGCCACCAGTCCCTGGGACAGCCTTGTCCCCGGGTACGCGGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGCTGCGGGCTTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTGAGGCGCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTTTGCGTTCCAGGCGCTGGATGCCAGGGACTCCCCGAGGTGCCCCGCTGCCCGAGGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCCGTTTCTGGAGCTGCTTGGGAACACGCGCAGTGCCCCACGGGGTGTCTCTCAAGACGCACTGCCGCTGCGAGCTGCGGTACCCAGCAGCGGGTGTGTGCCCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCCAGGGCTGTGTGGCGGGCCCCGAGGAGGAGACAGACCCCCGCTCGCTGGTGCAGTGTCTCGGCGACAGCAGCCCCGAGGTTACGGCTTGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCCCAGGCTCTGGGGCTCAGGCGACAACGCGGCTTCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11AO

GACGTGGAAGATGAGCGTGC GG GACTGCGCTTGGCTGCGCAGGAGCCAGGGGTTGGCTGTGTTCCGGCCGACAGACACCGCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCACGTGGCT
 T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L
 GATGAGTGTGTACGTCGCTGAGCTGCTCAGGTCTTTCTTTATGTCACGGAGACCAGCTTTCAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTCGAAAGCATTGG
 M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G
 AATCAGACAGCACTTGAAAGGGTGCAGCTGCGGGAGCTGTGGAAGCAGAGGTGAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
 I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D
 CGGGCTGCGGCCGATTGTGAACATGGACTACGTGCTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACGTGTTCAGCGTCTCAACTACGA
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 V K
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 D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q
 GAAGGCCGCCCATGGGCACGTCCGCAAGGCTTCAAGAGCCAGCTCTACCTTGACAGACCTCCAGCCGATACATGCGACAGTTCTGGTCTCACCTGCAGGAGACACCGCCGCTGAGGGA
 K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D
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Fig. 11AP

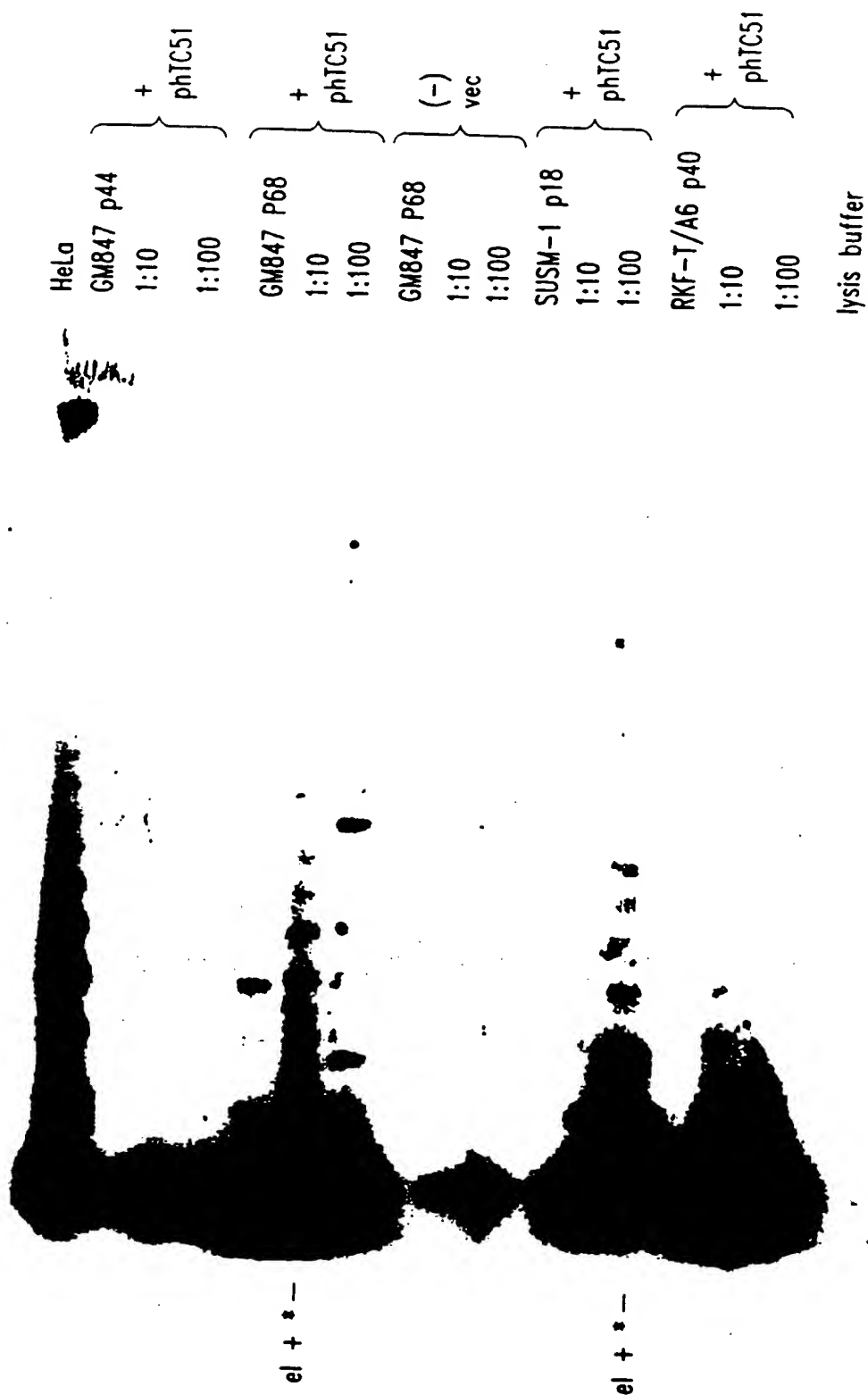


Fig. 12

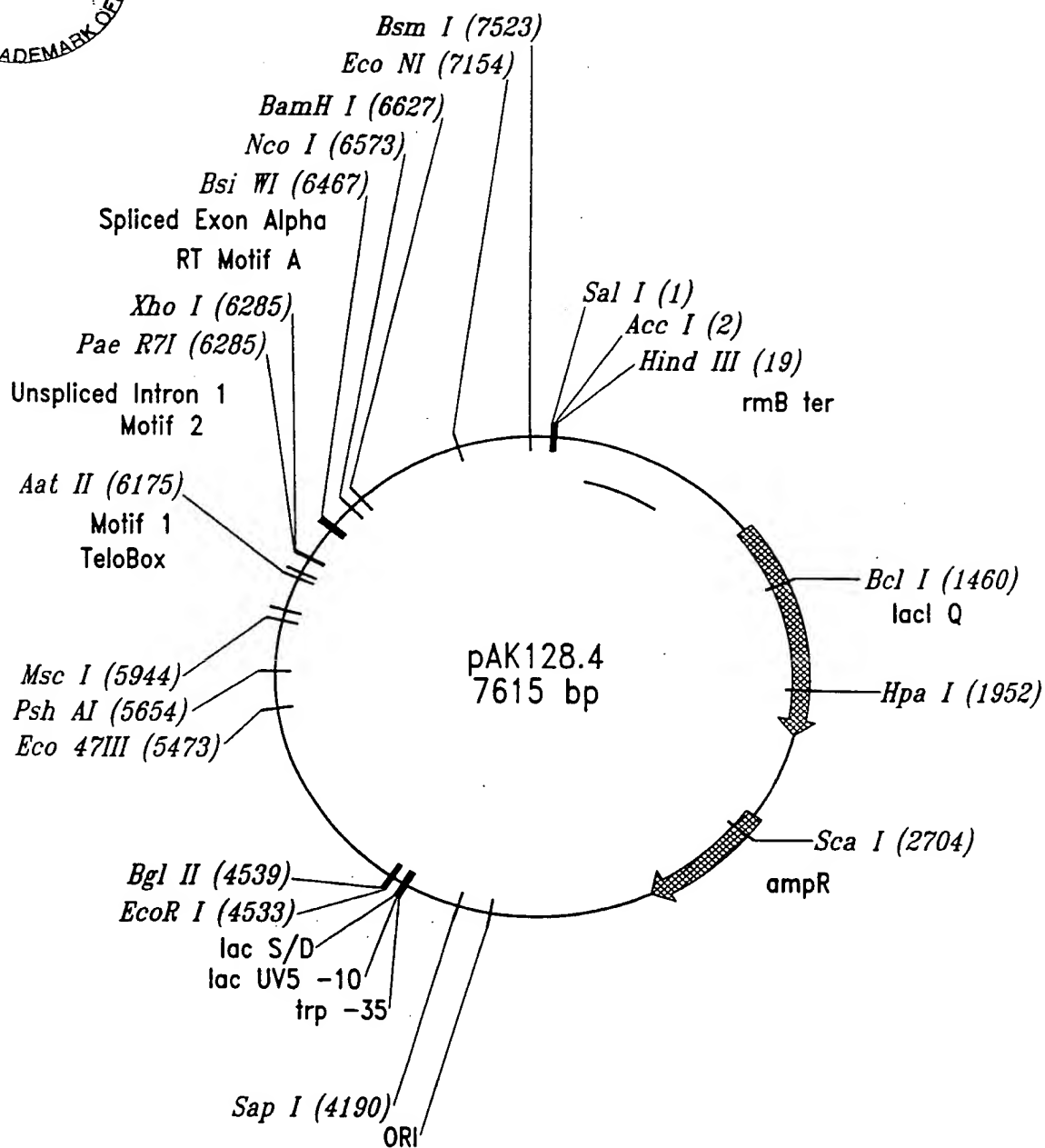


Fig. 13A

LOCUS pAKI28.4 7615 bp dsDNA Circular
 DEFINITION Human telomerase clone with exon beta spliced out



```

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121 aatagcgaag aggccgcgac cgatcgccct tccaacagt tgcgcagcct gaatggcgaa
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241 tccctgtttt ggcggatgag agaagatttt cagcctgata cagattaaat cagaacgcag
301 aagcggctcg ataaaacaga atttgccctg cgccagtagc gcggtgggcc cacctgaccc
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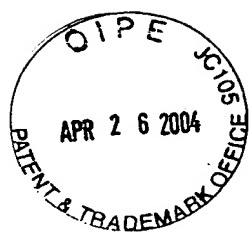
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Fig. 13B



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Fig. 13C



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Fig. 13D

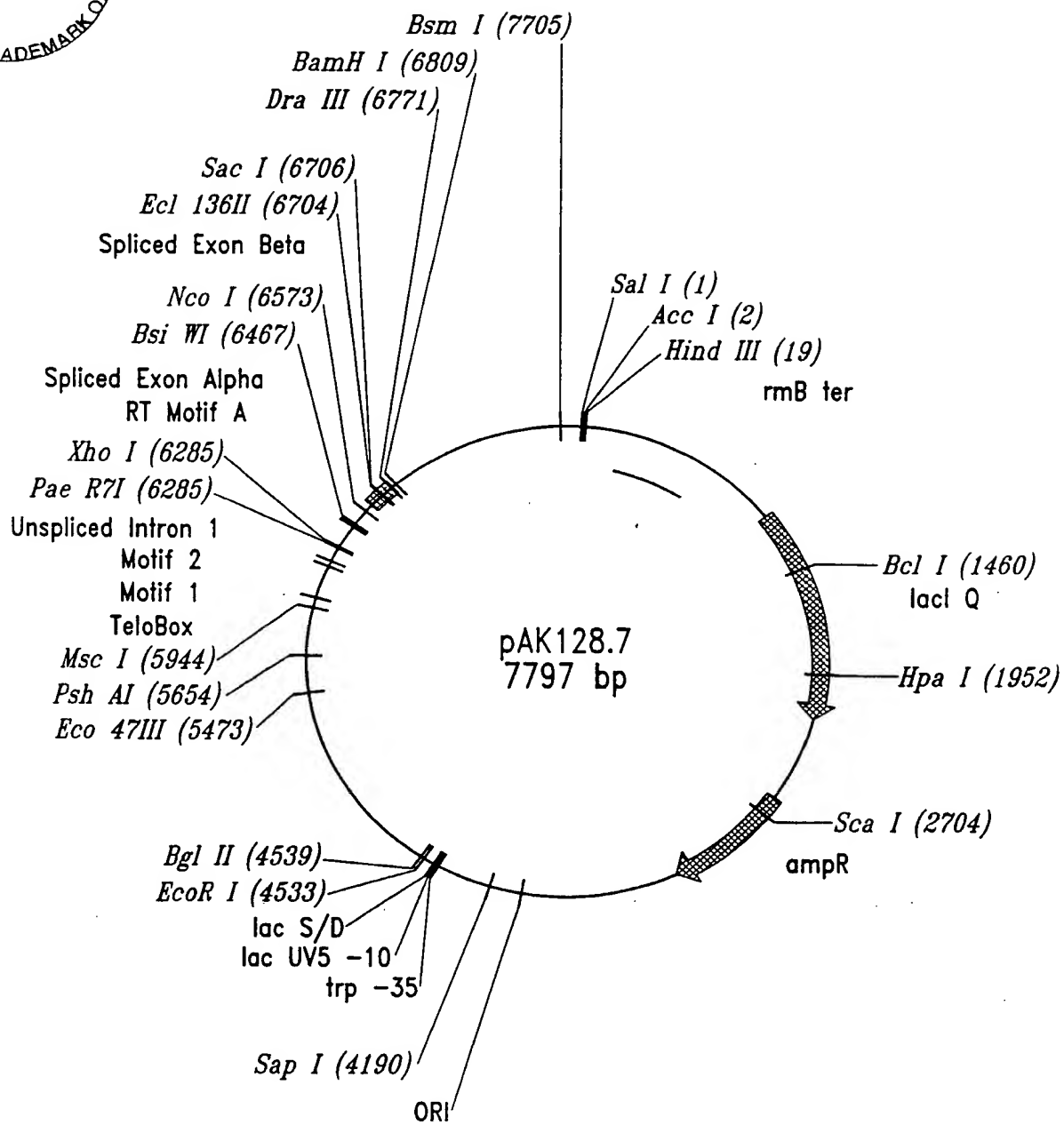


Fig. 14A

LOCUS pAKI28.7 7797 bp dsDNA Circular
 DEFINITION Human telomerase clone with alternative C-terminus



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Fig. 14B



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Fig. 14C



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Fig. 14D

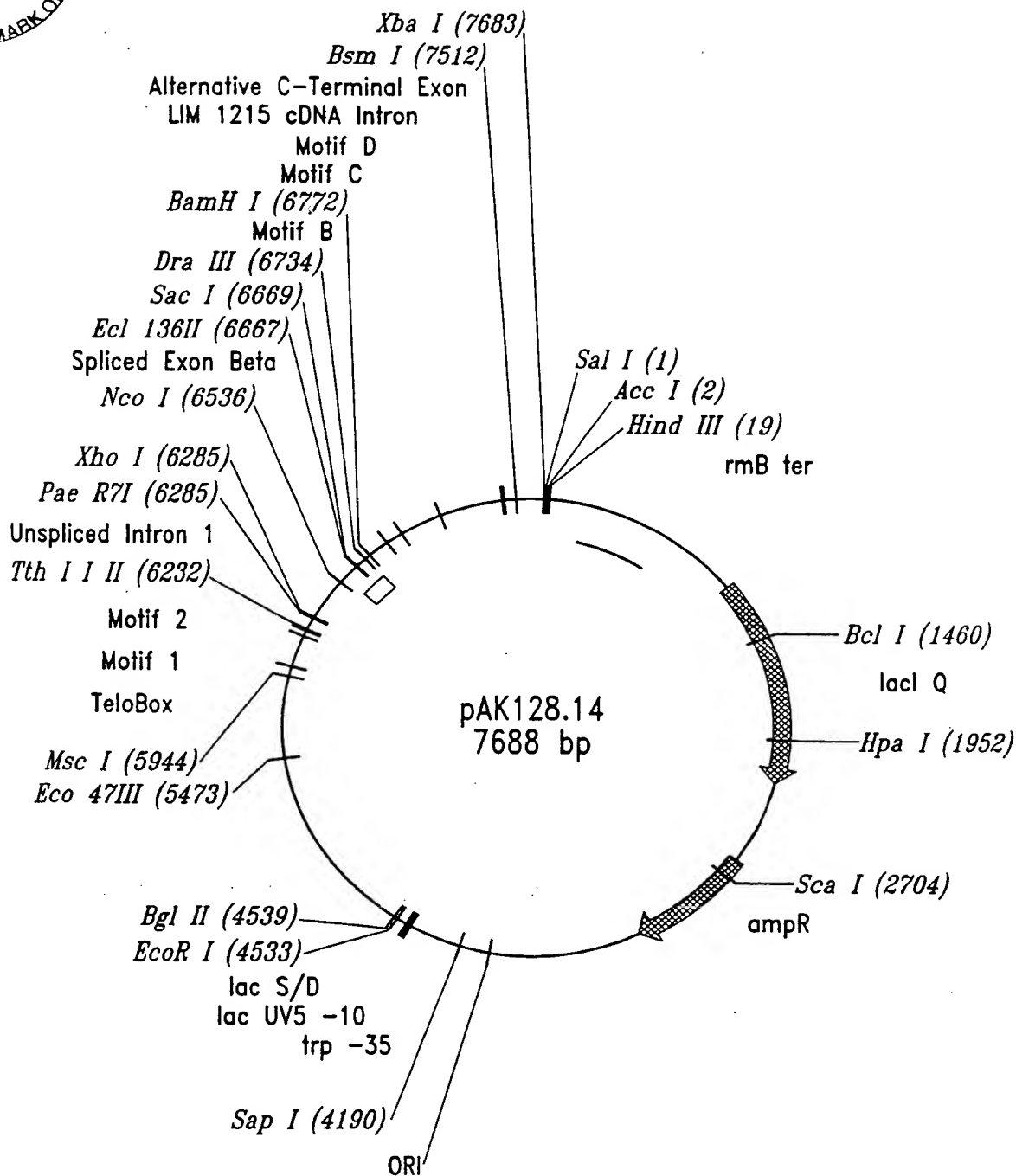
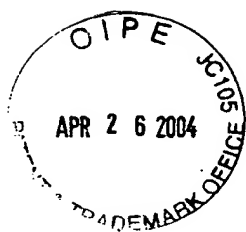


Fig. 15A

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 DEFINITION Human telomerase clone with exon alpha spliced out

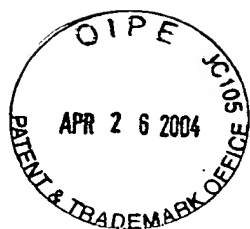


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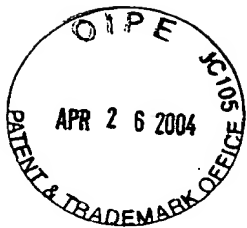
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Fig. 15B



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Fig. 15C



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Fig. 15D

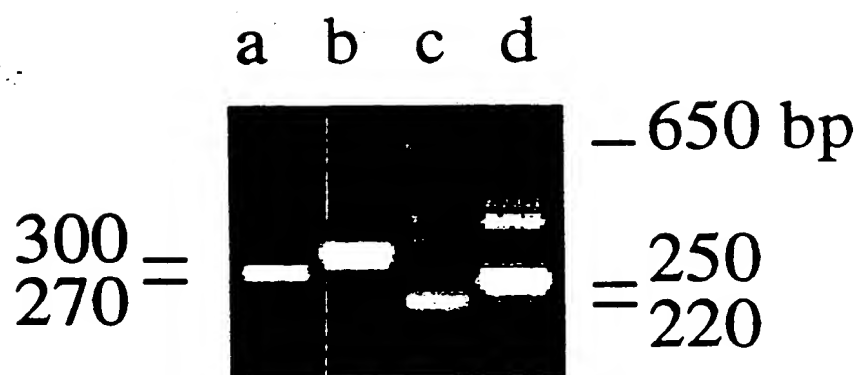


Fig. 9



sequence "Y" 104-105 bases

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ArgHisAlaGluSerSerAlaGlyAspSerGlyArgPheProArgArg
AspMetArgArgAlaAlaGlnAlaThrGlnGlyAlaSerProAlaGly
ThrCysGlyGluGlnArgArgArgLeuArgAlaLeuProProGlnVal

sequence "1" 38 bases

GTGGCTGTGCTTTGGTTTAACTTCCTTTTTAACCAGAA
ValAlaValLeuTrpPheAsnPheLeuPheAsnGlnLys

sequence "α" 36 bases

GTGGATGTGACGGGCGCGTACGACACCATCCCCAG
ValAspValThrGlyAlaTyrAspThrIleProGln

sequence "β" 182 bases

GTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTG
ValSerThrLeuThrAspLeuGlnProTyrMetArgGlnPheValAlaHisLeu

CAGGAGACCAGCCCGCTGAGGGATGCCGTGTCATCGAGCAGAGCTCCTCCCTG
GlnGluThrSerProLeuArgAspAlaValValIleGluGlnSerSerSerLeu

AATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCAC
AsnGluAlaSerSerGlyLeuPheAspValPheLeuArgPheMetCysHisHis

GCCGTGCGCATCAGGGGCAA
AlaValArgIleArgGlyLys

partial sequence "2" unknown length

GTGAGCGCACCTGGCCGGAAGTGGAGCCTGTGCCCGGCTGGGGCAGGTGCTGCTGCAG
Ter

GGCCGTTGCGTCCACCTCTGCTTCCGTGTGGGGCAGGCGACTGCCAATCCCAAAGGGT
CAGATGCCACAGGGTGCCCTCGTCCCATCTGGGGCTGAGCACAAATGCATCTTTCTG
TGGGAGTGAGGGTGCCTCACAACGGGAGCAGTTTTCTGTGCTATTTTGGTAA...

Fig. 10A



sequence "3" 159 bases

CCGAAGAAAACATTTCTGTCGTGACTCCTGCGGTGCTTGGGTCGGGACAGCCAGAG
AlaGluGluAsnIleSerValValThrProAlaValLeuGlySerGlyGlnProGlu

ATGGAGCCACCCCGCAGACCGTCGGGTGTGGGCAGCTTTCGGGTGTCTCCTGGGAGG
MetGluProProArgArgProSerGlyValGlySerPheProValSerProGlyArg

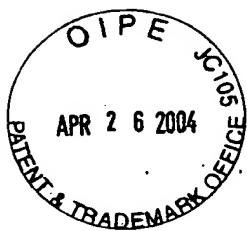
GGAGTTGGGCTGGGCCTGTGACTCCTCAGCCTCTGTTCCTCCCCAG
GlyValGlyLeuGlyLeu *

sequence "X" unknown length

...GACAGTCACCAGGGGGTTGACCGCCGACTGGGCGTCCCAGGGTTGACTATAGGA
CCAGGTGTCCAGGTGCCCTGCAAGTAGAGGGGCTCTCAGAGGCGTCTGGCTGGCATGG
GTGGACGTGGCCCCGGGCATGGCCTTCTGCGTGTGCTGCCGTGGGTGCCCTGAGCCCT
CACTGAGTCGGTGGGGGCTTGTGGCTTCCCGTGAGCTTCCCCTAGTCTGTTGTCTGG
CTGAGCAAGCCTCCTGAGGGGCTCTCTATTG

partial sequence of genomic intron (approximately 2.7 kb)
GTGGCTGTGCTTTTGGTTAACTTCCTTTTTTAACCAGAAGTGCGTTTGAGCCCCACATT
TGGTATCAGCTTAGATGAAGGGCCCGGAGGAGGGGCCACGGGACACAGCCAGGGCCAT
GGCACGGCGCCCACCCATTTGTGCGCACAGTGAGGTGGCCGAGGTGCCGGTGCCTCCA
GAAAAGCAGCGTGGGGGTGTAGGGGGAGCTCCTGGGGCAGGGAC....

Fig. 10B



Truncated telomerase

ATGCCGCGCGCTCCCCGCTGCCGAGCGTGGCGTCCCTGCTGCCGAGCCACTACCGCAGGTGCTGCCGCTGGCCACGTTTCGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGACGCGGGGACCGCGGCTTTCCGCGCGTGGTGGCCAGTGCCTGGTGTGCGTGGCTGGGACGCACGGCGCCCCCGCGCG
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTCCGCGAGGTGCTCTGCCTGAAGGAGTGGTGGCCGAGTGTGCGAGGCTGTGCGAGCGCGCGGAGAAACGTGCTGGCTTCGGCTTCGCGTGTGGACGGGGCCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCAACAGCGTGGCAGTACCTGCCAAGACGCGTACCGACGCACTGCGGGGAGCGGGGCTGGGGCTGCTGCTGCCGCGCTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTACCTGCTGGCAGCTGCGCGCTCTTTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGCGGGCGCGCTGTACAGCTCGGCGTGCCTACGCGCGCGCGCGCG
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGACCCCAAGCGCTCTGGGATGCAACGGGCTGGAACCATAGCGTACGGGAGCGGGGTCCTGGGCTGCCAGCCCGGTCGAGGAGCGCGGGGCGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTGTCCGTTGCCAAGAGGCCAGCGTGGCGCTGCCCTGAGCGGAGCGGACGCCGTGGGCGAGGGTCTGGGCGCACCGGCGAGGCGGTGGACGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGGTGTACCTGCCAGACCGCGCAAGAGCCACCTCTTTGGAGGGTGGCGTCTCTGGCAGCGCCACTCCACCCATCCGTGGGCGCGCAGCACCAGCGGGCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCGTCCCTGGGACAGCGCTGTCCCCGGTGTACGCCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGGCTCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTGAGGCCAGCGTGAAGTGGCGCTCGGAGGCTGTGGAGACCATCTTTCTGGGTTCCAGGCGCTGGATGCCAGGACTCCCGCAGGTTGCCCGCTGCCCGACGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCTGTTTCTGAGAGTGTCTGGGAACACGCGAGTGGCGCTACGGGGTGTCTCAAGACGCACTGCCGCTGCGAGCTGCGGTACCCGAGCAGCGGTGTCTGTGCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCGAGGCTCTGTGGCGGCCCCGAGGAGGAGACAGACCCCGTGGCTGGTGCAGTGTCTGCCACAGCAGCAGCCCTGGCAGGTGTACGGCTTCTGTGGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCCCGGCTGGTGGCCCCAGGCTCTGGGGCTCCAGGCACAACGAGCGCTTCTCAGGAACCAAGAAGTTCTCTCTGGGGAAGCATGCCAAGCTCTCGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCGTGGCGGACTGCGCTGGCTGGCAGGAGCCAGGGGTTGGTGTGTTCCGGCCGAGAGCAGCGTGTGCGTGAGGAGATCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGCTGCTGAGCTGCTCAGGTCTTTCTTTATGTACGGAGACCACGTTTCAAAGAAGAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

AAT--NNN--GACAGTCAACAGGGGGTTGACCGCGGACTGGGCGTCCCGAGGTTGACTATAGGACCAGGTGTCCAGGTGCCCTGCAAGTAGAGGGGCTCTCAGAGCGTGTGGCTGG

Fig. 11A



CATGGGTGGACGTGGCCCCGGGCATGGCCTTCTGCGTGTGCTGCCGTGGGTGCCCTGAGCCCTCACTGAGTCGGTGGGGGCTTGTGGCTTCCCGTGAGCTTCCCCCTAGTCTGTTGTCTG

GCTGAGCAAGCCTCCTGAGGGGCTCTCTATTG...

Fig. 11B



Truncated protein 1

ATGCCGCGGCTCCCCGCTGCCGAGCGTGGCTCCCTGCTGCCGAGCCACTACCGAGGGTGTGCCGTGGCCACGTTCTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGGGGACCGCGGCTTTCCGCGCTGGTGGCCAGTGCCTGGTGTGCGTGGCTGGGACGCACGGCCGCCCCGCGCG
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTCCGCGAGGTGTCTGCTGAAGGAGCTGGTGGCCGAGTGTGCAGAGGCTGTGCCGAGCGGGCGGAAGAACGTGTGGCTTCGGCTTCGCGCTGTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGCAGCTACCTGCCAACAGGTGACGACGACTGCCGGGGAGCGGGCGTGGGGGTGTGTGTGCCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGTTACCTGCTGGCAGCTGCCGCTCTTTGTGTGGTGGCTCCAGCTGCCCTACAGGTGTGGGGCCGCGCTGTACCAGCTCGGCGTGGCACTAGGCCCGCCCCGCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAAGCGCTCTGGGATGCGAACGGGCTGGAACCATAGCTCAGGAGGCGGGGTCCCCCTGGGCTGCCAGCCCCGGTGGAGGAGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTGTGCCGTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACGCCCTTGGGAGGGGTCTGGGCCACCCGGGACGACGCTGACCGAGTGAACG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGGTGTACCTGCCAGACCCGCGAAGAAGCCACCTCTTTGAGGGGTGCGCTCTGTGCAGCGCCACTCCACCCATCCGTGGGCCGCCAGCACCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACACGCTCCCTGGGACACGCTTGTCCCCGGGTGACGCCGAGACCAAGCACTTCCTCTACTCTCAGGCGACAAGGAGCAGCTGCGGCCCTCTTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTGAGGCCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTTTGAGGTTCAGGCCCTGGATGCCAGGACTCCCGCAGGTTGCCCCGCTGCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATCGGCCCCGTGTTCTGGAGCTGCTTGGGAACACGCGCAGTGCCCTACGGGGTGTCTCAAGACGCACTGCCGCTGCGAGCTGCGGTACCCAGCAGCGGTGTGTGTGCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

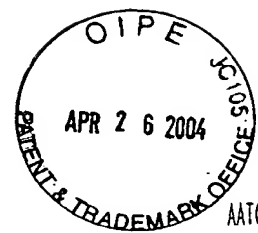
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E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTCCCCAGGCTCTGGGGCTCAGGCACAACGAACGCCCTTCTCAGGAACACCAAGTTCATCTCCCTGGGAAGCATGCCAAGCTCTGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGAAGATGAGCGTGGGACTGCGCTTGGTGGCAGGAGCCAGGGGTGGTGTGTTCGGCCGAGAGCACCCTGCGTGAGGAGATCTGGCCAAGTTCCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTACGTCGTCGAGCTGCTCAGGTCTTTCTTTATGTACGGAGACACGTTTCAAAAGAAGGCTCTTTTTCTACCGAAGAGTGTCTGGAGCAAGTGCAGGATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 11C



AATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

GTGGCTGTGCTTTGGTTAACTTCCTTTTAAACCAGAA
V A V L W F T F L F N Q K

CGGGCTGGGCCGATTGTGAACATGGACTACGTGCTGGGAGCCAGAACGTTCCGAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTGCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R P S V S F R G *

Fig. 11D



Truncated protein 2

ATGCCGCGCGCTCCCGCTGCCGAGCGCGCTCCCTGCTGCGCAGCCACTACCGGAGGTGCTGCCGTGGCCAGTTCGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGACGCGGGGACCGCGGGCTTTCGCGCGCTGGTGCCAGTGCCTGGTGCGTGCCCTGGGACGACGGCCGCCCCCGCGCG
R R L G P O G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCTCCTTCGCGCAGGTGTCTGCTGAAGGAGCTGGTGGCCGAGTGTGACAGGCTGTGCGAGCGCGCGGAAGAAGCTGTGGCTTCGGCTTCGCGCTGCTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTCACCACGAGCTGCGCAGCTACCTGCCAACAGGTGACCCAGCAGTGGGGGGAGCGGGGCTGGGGGCTGCTGCTGCCCGCGTGGGAGACGAGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTCACCTGCTGGCAGCTGCGCGCTCTTTGTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGCGGGCGCGCGTGTACAGCTCGGCGTGCCTAGGCCGGCCCCCGCG
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGACCCCGAAGCGCTGGGATGCGAAGCGGCTGGAACCATAGCGTCAGGGAGCGCGGGTCCCCCTGGGCTGCCAGCCCCGGTGGAGGAGCGCGGGGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTCTGCCGTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACGCGCGTGGGAGGGGCTCTGGGCCACCGGGCAGGACGCTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGTTTTCTGTGTGTGCTACCTGCCAGACCCGCGAAGAAGCCACCTTTGGAGGGTGGCTCTCTGGCAGCGCCACTCCACCCATCCGTGGGCGCGCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCAGCTCCCTGGGACACGCTTGTCCCCGGGTACGCGGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGCCTCTTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTGAGGCCAGCTGACTGGCGCTCGGAGGCTCGTGAGACCATCTTTCTGGGTTCAGGCCCTGGATGCCAGGACTCCCGCAGGTGGCCCGCTGCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATCGGGCCCTGTTTCTGAGCTGCTTGGGAACACGCGAGTGGCCCTACGGGGTGTCTCTAAGACGCACTGCCGCTGCGAGCTGCGGTACCCAGCAGCGGCTGTGTGCCCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

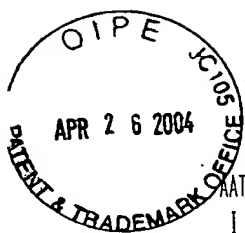
GGAGAAGCCCGAGGCTCTGTGGCGGCCCCGAGGAGGAGACACAGCCCCGCTCGCTGGTGCAGTGTCTCCGACGACAGAGCCCTGGCAGGTGTACGGCTTCGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGCCCCAGGCTCTGGGGCTCCAGGCACAACGAGCGCTTCTCAGGAACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCTGCGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTGGCTGTGTTCGCGCGCAGAGCAGCTGCTGCTGAGGAGATCTGCGCAAGTTCCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGTGCTGAGCTGCTCAGGTCTTTCTTTATGTACAGGAGACACGTTTCAAAAGAACAGGCTCTTTTCTACCGAAGAGTGTCTGGAGCAAGTGTCAAAGCAATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 11E



ATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

CGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GCGGGCGCGGCCCGCCCTCTGGGCGCCTGTGTGGGCTGGACGATATCCACAGGGCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCGCCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTCAAGGTGGATGTGACGGGCGGTACGACACCATCCCCAGGACAGGCTCAGGAGGTATCGCCAGCATCATCAAAACCCAGAACGTAAGTGTGCGTGGTATGCCGTGGTCCA
V K V D V T G A Y D T I P Q D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAAGGCCGCCATGGGCAGTCCGCAAGGCTTCAAGAGCCAC
K A A H G H V R K A F K S H

GTCTACGTCCAGTG
V L R P V

CCAGGGGATCCCGCAGGGCTCATCCTCTCCACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGGGGGATTCGGCGGGACGGGCTGCTCCTGCTTTGGTGGA
P G D P A G L H P L H A A L Q P V L R R H G E Q A V C G D S A G R A A P A F G G

TGATTTCTGTTGGTGACCTCACCTCACCCACGCGAAACCTTCCTCAGGACCTGGTCCGAGGTGTCCTGAGTATGGCTGCGTGGTGAACCTTGGGAAGACAGTGGTGAACCTCCC
*

Fig. 11F



Reference protein

ATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAG	60
MetProArgAlaProArgCysArgAlaValArgSerLeuLeuArgSerHisTyrArgGlu	20
GTGCTGCCGCTGGCCACGTTCTGTCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAG	120
ValLeuProLeuAlaThrPheValArgArgLeuGlyProGlnGlyTrpArgLeuValGln	40
CGCGGGGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCAGTGCCCTGGTGTGCGTGCCCTGG	180
ArgGlyAspProAlaAlaPheArgAlaLeuValAlaGlnCysLeuValCysValProTrp	60
GACGCACGGCCGCCCCCGCCGCCCTCTCCGCCAGGTGTCCTGCCTGAAGGAGCTG	240
AspAlaArgProProProAlaAlaProSerPheArgGlnValSerCysLeuLysGluLeu	80
GTGGCCCAGTGCTGCAGAGGCTGTGCGAGCGCGGCGCAAGAACGTGCTGGCCTTCGGC	300
ValAlaArgValLeuGlnArgLeuCysGluArgGlyAlaLysAsnValLeuAlaPheGly	100
TTGCGCTGCTGGACGGGGCCCGGGGGCCCCCCCCAGGCCTTCACCACGCGTGCGC	360
PheAlaLeuLeuAspGlyAlaArgGlyGlyProProGluAlaPheThrThrSerValArg	120
AGCTACCTGCCCCAACACGGTGACCGACGCACTGCGGGGGAGCGGGGCGTGGGGGCTGCTG	420
SerTyrLeuProAsnThrValThrAspAlaLeuArgGlySerGlyAlaTrpGlyLeuLeu	140
TTGCGCCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTG	480
LeuArgArgValGlyAspAspValLeuValHisLeuLeuAlaArgCysAlaLeuPheVal	160
CTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCCGCGCTGTACCAGCTCGGCGCT	540
LeuValAlaProSerCysAlaTyrGlnValCysGlyProProLeuTyrGlnLeuGlyAla	180
GCCACTCAGGCCCGCCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAA	600
AlaThrGlnAlaArgProProProHisAlaSerGlyProArgArgArgLeuGlyCysGlu	200
CGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGT	660
ArgAlaTrpAsnHisSerValArgGluAlaGlyValProLeuGlyLeuProAlaProGly	220
GCGAGGAGGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCAGGCGT	720
AlaArgArgArgGlyGlySerAlaSerArgSerLeuProLeuProLysArgProArgArg	240
GGCGCTGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCTGGGCCCACCCGGGC	780
GlyAlaAlaProGluProGluArgThrProValGlyGlnGlySerTrpAlaHisProGly	260
AGGACGCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTACCTGCCAGACCCGCCGAA	840
ArgThrArgGlyProSerAspArgGlyPheCysValValSerProAlaArgProAlaGlu	280
GAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGC	900
GluAlaThrSerLeuGluGlyAlaLeuSerGlyThrArgHisSerHisProSerValGly	300

Fig. 11G



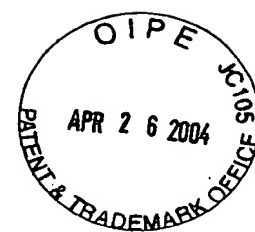
CGCCAGCACCACGCGGGCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCT	960
ArgGlnHisHisAlaGlyProProSerThrSerArgProProArgProTrpAspThrPro	320
TGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAG	1020
CysProProValTyrAlaGluThrLysHisPheLeuTyrSerSerGlyAspLysGluGln	340
CTGCGGCCCTCCTTCTACTCAGCTCTCTGAGGCCAGCCTGACTGGCGCTCGGAGGCTC	1080
LeuArgProSerPheLeuLeuSerSerLeuArgProSerLeuThrGlyAlaArgArgLeu	360
GTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGAGGTTGCC	1140
ValGluThrIlePheLeuGlySerArgProTrpMetProGlyThrProArgArgLeuPro	380
CGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCTGTTTCTGGAGCTGCTTGGGAACCAC	1200
ArgLeuProGlnArgTyrTrpGlnMetArgProLeuPheLeuGluLeuLeuGlyAsnHis	400
GCGCAGTGCCCTACGGGGTGCTCCTCAAGACGCACTGCCCCGCTGCGAGCTGCGGTCACC	1260
AlaGlnCysProTyrGlyValLeuLeuLysThrHisCysProLeuArgAlaAlaValThr	420
CCAGCAGCCGGTGTCTGTGCCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCGAGGAG	1320
ProAlaAlaGlyValCysAlaArgGluLysProGlnGlySerValAlaAlaProGluGlu	440
GAGGACACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAG	1380
GluAspThrAspProArgArgLeuValGlnLeuLeuArgGlnHisSerSerProTrpGln	460
GTGTACGGCTTCGTGCGGGCCTGCCTGCGCCGGCTGGTGCCCCAGGCCTCTGGGGCTCC	1440
ValTyrGlyPheValArgAlaCysLeuArgArgLeuValProProGlyLeuTrpGlySer	480
AGGCACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCAT	1500
ArgHisAsnGluArgArgPheLeuArgAsnThrLysLysPheIleSerLeuGlyLysHis	500
GCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTG	1560
AlaLysLeuSerLeuGlnGluLeuThrTrpLysMetSerValArgAspCysAlaTrpLeu	520
CGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGAGAGCACCGTCTGCGTGAGGAGATC	1620
ArgArgSerProGlyValGlyCysValProAlaAlaGluHisArgLeuArgGluGluIle	540
CTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTC	1680
LeuAlaLysPheLeuHisTrpLeuMetSerValTyrValValGluLeuLeuArgSerPhe	560
TTTTATGTCACGGAGACCACGTTTCAAAGAAGAGGCTCTTTTCTACCGGAAGAGTGTC	1740
PheTyrValThrGluThrThrPheGlnLysAsnArgLeuPhePheTyrArgLysSerVal	580
TGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGAGCTGCGGGAG	1800
TrpSerLysLeuGlnSerIleGlyIleArgGlnHisLeuLysArgValGlnLeuArgGlu	600
CTGTGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGA	1860
LeuSerGluAlaGluValArgGlnHisArgGluAlaArgProAlaLeuLeuThrSerArg	620

Fig. 11H



CTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTG LeuArgPheIleProLysProAspGlyLeuArgProIleValAsnMetAspTyrValVal	1920 640
GGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCA GlyAlaArgThrPheArgArgGluLysArgAlaGluArgLeuThrSerArgValLysAla	1980 660
CTGTTACAGCGTGCTCAACTACGAGCGGGCGGGCGCCCCGGCCTCCTGGGCGCCTCTGTG LeuPheSerValLeuAsnTyrGluArgAlaArgArgProGlyLeuLeuGlyAlaSerVal	2040 680
CTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAG LeuGlyLeuAspAspIleHisArgAlaTrpArgThrPheValLeuArgValArgAlaGln	2100 700
GACCCGCCGCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATC. AspProProProGluLeuTyrPheValLysValAspValThrGlyAlaTyrAspThrIle	2160 720
CCCCAGGACAGGCTCACGGAGGTCATGCCAGCATCATCAAACCCAGAACACGTACTGC ProGlnAspArgLeuThrGluValIleAlaSerIleIleLysProGlnAsnThrTyrCys	2220 740
GTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAG ValArgArgTyrAlaValValGlnLysAlaAlaHisGlyHisValArgLysAlaPheLys	2280 760
AGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTG SerHisValSerThrLeuThrAspLeuGlnProTyrMetArgGlnPheValAlaHisLeu	2340 780
CAGGAGACCAGCCCGCTGAGGGATGCCGTGTCATCGAGCAGAGCTCCTCCCTGAATGAG GlnGluThrSerProLeuArgAspAlaValValIleGluGlnSerSerSerLeuAsnGlu	2400 800
GCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATC AlaSerSerGlyLeuPheAspValPheLeuArgPheMetCysHisHisAlaValArgIle	2460 820
AGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTG ArgGlyLysSerTyrValGlnCysGlnGlyIleProGlnGlySerIleLeuSerThrLeu	2520 840
CTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTGCGCGGGAC LeuCysSerLeuCysTyrGlyAspMetGluAsnLysLeuPheAlaGlyIleArgArgAsp	2580 860
GGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCG GlyLeuLeuLeuArgLeuValAspAspPheLeuLeuValThrProHisLeuThrHisAla	2640 880
AAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACCTG LysThrPheLeuArgThrLeuValArgGlyValProGluTyrGlyCysValValAsnLeu	2700 900
CGGAAGACAGTGGTGAACCTTCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTT ArgLysThrValValAsnPheProValGluAspGluAlaLeuGlyGlyThrAlaPheVal	2760 920
CAGATGCCGGCCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGACCCTG GlnMetProAlaHisGlyLeuPheProTrpCysGlyLeuLeuLeuAspThrArgThrLeu	2820 940

Fig. 11I



GAGGTGCAGAGCGACTACTCCAGCTATGCCCCGACCTCCATCAGAGCCAGTCTCACCTTC	2880
GluValGlnSerAspTyrSerSerTyrAlaArgThrSerIleArgAlaSerLeuThrPhe	960
AACCGCGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTG	2940
AsnArgGlyPheLysAlaGlyArgAsnMetArgArgLysLeuPheGlyValLeuArgLeu	980
AAGTGTCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAAC	3000
LysCysHisSerLeuPheLeuAspLeuGlnValAsnSerLeuGlnThrValCysThrAsn	1000
ATCTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCA	3060
IleTyrLysIleLeuLeuLeuGlnAlaTyrArgPheHisAlaCysValLeuGlnLeuPro	1020
TTTCATCAGCAAGTTTGAAGAACCCACATTTTTCTGCGCGTCATCTCTGACACGGCC	3120
PheHisGlnGlnValTrpLysAsnProThrPhePheLeuArgValIleSerAspThrAla	1040
TCCCTCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAAGGGC	3180
SerLeuCysTyrSerIleLeuLysAlaLysAsnAlaGlyMetSerLeuGlyAlaLysGly	1060
GCCGCCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCTGCTC	3240
AlaAlaGlyProLeuProSerGluAlaValGlnTrpLeuCysHisGlnAlaPheLeuLeu	1080
AAGCTGACTCGACACCGTGTACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAG	3300
LysLeuThrArgHisArgValThrTyrValProLeuLeuGlySerLeuArgThrAlaGln	1100
ACGCAGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGAGCCAAC	3360
ThrGlnLeuSerArgLysLeuProGlyThrThrLeuThrAlaLeuGluAlaAlaAlaAsn	1120
CCGGCACTGCCCTCAGACTTCAAGACCATCCTGGAC	3420
ProAlaLeuProSerAspPheLysThrIleLeuAsp	1132

Fig. 11J



Truncated protein 3

ATGCCGCGGCTCCCCGCTGCCAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGTGGCCAGTTCGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTTGGGGCCAGGGCTGGCGGCTGGTGCAGCGGGGACCGGGGCTTCCGCGGCTGGTGGCCAGTGCCTGGTGTGCGTGCCCTGGGACGACGGCCGCCCGCGCG
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTCCGCCAGGTGCTGCTGAAGGAGCTGGTGGCCGAGTGTGCTGAGAGGCTGTGCGAGCGGGCGGAAGAACGTGCTGGCCTTCGGCTTCGCGCTGTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGGCTTACCACGAGCGTGCAGCTACCTGCCAACACGGTGACCGACCACTGCGGGGAGCGGGGCTGGGGGCTGCTGCTGCGCGCGTGGGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGTTACCTGCTGGCAGCTGCGCGCTCTTTGCTGGTGGTCCCAGCTGCGCTACCAAGTGTGCGGGCGCGCTGTACCAGCTCGGCGTGCCTCAGGCCGGCCCCGCG
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAAGGCGTCTGGGATGCCAAGGGCTGGAACCATAGCGTCAGGGAGGCGGGGCTCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGCGCGGGGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCCGTTGCCAAGAGGCCAGGCGTGGCGTGGCCCTGAGCGGAGCGGACGCCGTTGGGCGAGGGTCTGGGCCCCACCGGGCAGGACGCTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGTTTCTGTGTGTGTCACCTGCCAGACCCCGGAAGAAGCCACCTCTTTGGAGGGTGGCTCTCTGCGCAGCGCCACTCCACCCATCCGTGGGCGCCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGCCACCAGTCCCTGGGACACGCTTGTCCCCGGTGTACCGGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGCCCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGCGCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTTTCTGGGTTCAGGCGCTGGATGCCAGGGACTCCCGCAGGTGCCCCGCTGCCCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATCGGGCCCTGTTTCTGGAGTGCTTGGGAACACGCGAGTGCCTTACGGGTGCTCTCAAGACCACTGCCGCTGCGAGCTGGGTGCCCCAGCAGCGGTGTCTGTGCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

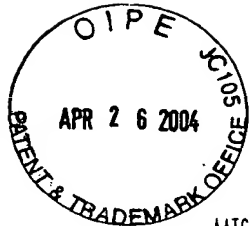
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E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTCGCGCGCTGGTCCCCAGGCTCTGGGGCTCCAGGACAACGAACCGCTTCTCAGGAACCAAGAAGTTCATCTCCCTGGGAAGCATGCAAGCTCTCGTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCGTGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTGGCTGTGTTCCGGCGCAGAGCACCGTCTGCGTGAGGAGATCTGGCCAAGTTCCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTCTTTTATGTACGGAGACACGTTTCAAAGAAGAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTCAGAAAGATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 11K



AATCAGACGACCTTGAAGAGGGTGCAGCTGCGGGAGCTGTCCGAAGCAGAGGTGAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

C6GGGTGCGGCCGATTGTGAACATGGACTACGTGCGGAGCCAGAAGCTTCCGCAGAGAAAAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTGCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GC6GGGCGCGGCCCGCCGCTCCTGGGCGCTGTGTGCTGGGCTGGACGATATCCACAGGGCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCGCTGAGCTGACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTCAAGGTGGATGTGACGGGCGGTACGACACCATCCCCAGGACAGGCTCAGGAGGTGATCGCCAGCATCATCAACCCAGAACACGTACTGCGTGGTGGTATGCCGTGGTCCA
V K V D V T G A Y D T I P Q D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAAGGCCGCCATGGGCAGCTCCGCAAGGCTTCAAGAGCCAGCTCTACCTTGACAGACCTCCAGCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACAGCCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D

TGCCGTGTCATCGAGCAGAGCTCCTCCGTAATGAGGCCAGCAGTGCCCTCTTCGACGTCTTCTACGCTTCATGTGCCACACGCCGTGCGCATCAGGGCAAGCTACGTCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C

CCAGGGGATCCCGAGGGCTCCATCCTCTCCACGCTGCTCTGCAGCCTGTGCTACGGGACATGGAGAACAAGCTGTTTGGGGGATTGCGGGGACGGGCTGCTCCTGCGTTTGGTGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D

TGATTTCTGTTGGTGACACCTCACCTCACCCACGCGAAAACCTTCTCAGGACCTGGTCCGAGGTGTCCTGAGTATGGCTGCGTGGTGAACCTTGGGAAGACAGTGGTGAACCTCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P

TGTAGAAGACGAGGCCCTGGGTGGCAGGGCTTTTGTTCAGATGCCGGCCACGGCTATTCCCTGCGTGGGCTGCTGCTGGATACCCGGACCTGGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S R

GTGAGCGCACCTGGCCGAAGTGGAGCCTGTGCCCGGCTGGGGCAGGTGCTGCTGCAGGGCGTTGCGTCCACCTCTGCTTCCGTGTGGGGCAGGCGACTGCCAATCCCAAAGGTCAGA
*

TGCCACAGGGTGCCCTCGTCCCATCTGGGGCTGAGCACAAATGCATCTTTCTGTGGGAGTGAGGGTGCCTCACAACGGGAGCAGTTTTCTGTGCTATTTTGGTAA.....

Fig. 11L



Altered C-terminus protein

ATGCCGCGCGCTCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGCCACGTTTCGT
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCAGGGCTGGCGCTGGTGCAGCGGGGACCGCGGCTTTCCGCGCGCTGGTGGCCAGTGCCTGGTGTGCGTGGCTGGGACGCACGGCCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTCCCGCAGGTGCTGCTGAAGGAGCTGGTGGCCGAGTGTGCAGAGGTGTGCGAGCGCGCGGAAGAAGTGTGGCTTCGGCTTCGCGCTGTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGGCTTACCACACAGCTGCGCAGCTACCTGCCAACAGGTGACCGACGACTGCGGGGAGCGGGGCTGGGGCTGTGTGCGCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTCACCTGCTGGCAGCTGCGCGCTTTTGTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGCGGGCGCGCTGTACCAGCTGCGCGTGCCTACTCAGGCCGGCCCCCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAGGGCTGTGGATGCCAACGGGCTGGAACCATAGCGTCAGGAGGGCGGGGTCCCTGGGCTGCCAGCCCGGGTGGAGGAGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTGTGGCTGCCAAGAGGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGAGCCCGTTGGGCGAGGGTCTGGGCCACCGGGCAGGACGCGTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTCTGTGTGTACCTGCCAGACCCGCGAAGAAGCCACCTTTTGGAGGGTGGCGTCTGTGGCAGCGCCACTCCACCCATCCGTGGGCGCCAGCACCAGCGGGGCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCGCTCCCTGGGACCGCTTGTCCCCGGGTGACGCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGCCCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGCCAGCCTGACTGGCGCTCGGAGGCTGTGGAGACCATTTTCTGGGTTCCAGGCGCTGGATGCCAGGACTCCCGCAGGTTGCCCGCTGCCCGAGCCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCTGTTTCTGGAGTGTGTGGGAACACGCGAGTGGCCCTACGGGGTGTCTCTAAGACGCACTGCCGCTGGAGCTGCGGTACCCAGCAGCGGTGTGTGCCCC
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

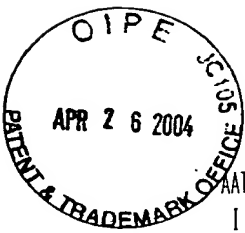
GGAGAAGCCCCAGGGCTGTGTGGCGGCCCCGAGGAGGAGGACACAGACCCCGTGCCTGGTGCAGTGTCTCCGCGACAGCAGCCCTGGCAGGTGTACGGCTTCGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCCCAGGGCTTGGGGCTCCAGGCACAACGAAGCCGCTTCTCAGGAACACCAAGAAGTTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCGTGGGACTGCGCTTGGCTGCGAGGAGCCAGGGGTTGGTGTGTTCCGCGCGCAGAGCAGCGTCTGCGTGAGGAGATCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGCTGCTGAGCTGCTCAGGTCTTTCTTTATGTACGGAGACCAGTTTCAAAGAAGCGCTTTTTTACCGGAAGAGTGTCTGGAGCAAGTTGCAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 11M



AATCAGACGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCCGAAGCAGAGGTAGGCAGCATCGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D
CGGGCTGCGCCGATTGTGAACATGGACTACGCTGTTGGGAGCCAGAAGCTTCCGAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCTGCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E
CGGGCGCGGGCCCGCCCTCTGGGCGCCTGTGTGCTGGGCTGGACGATATCCACAGGGCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCGCCTGAGCTGACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F
TGTCAAGGTGGATGTGACGGGCGGTACGACACCATCCCCAGGACAGGCTCAGGAGGTATCGCCAGCATCATCAAAACCCAGAACGTAAGTGGCTGCGTGGTATGCCGTGGTCCA
V K V D V T G A Y D T I P Q D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q
GAAGGCCGCCATGGGACGTCCGAAGGCCCTCAAGAGCCAGCTCTTACCTTGACAGACCTCCAGCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCGCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D
TGCGCTGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAGCAGTGGCCTCTTGACGCTTCTTACGCTTCATGTGCCACCACCGCTGCGCATCAGGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C
CCAGGGGATCCCGAGGGCTCCATCCTCTCCAGCTGCTCTGACGCTGTGTACGGGACATGGAGAACAAGCTGTTTGGGGGATTGCGGGGACGGGCTGCTCCTGCGTTTGGTGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D
TGATTTCTTGTGTGACACCTCACCTCACCCACCGAAACCTTCTCAGGACCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAAGTTCGCGAAGACAGTGGTGAAGTTCCT
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P
TGTAAGACGAGGCCCTGGGTGGCAGGCTTTTGTTCAGATGCCGGCCACGGCCTATTCCCTGGTGGGCTGCTGCTGGATACCCGACCTGGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S S
CTATGCCCGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGGCTTCAAGGCTGGGAGGAACATCGCTCGCAAACTCTTTGGGGTCTTGGGCTGAAGTGTACAGCCTGTTTCTGGA
Y A R T S I R A S L T F N R G F K A G R N M R R K L F G V L R L K C H S L F L D
TTTGAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTACAAGATCCTCTGCTGACGGGTACAGGTTTCACGCATGTGTGCTGACGCTCCCATTTTCATCAGCAAGTTTGAAGAA
L Q V N S L Q T V C T N I Y K I L L L Q A Y R F H A C V L Q L P F H Q Q V W K N
CCCCACATTTTCTGCGGTATCTCTGACAGGCTCCCTCTGCTACTCATCTCTGAAAGCAAGAAGCGAGGGATGTGCTGGGGGCCAAGGGCGCCGCGCCCTCTGCGCTCCGA
P T F F L R V I S D T A S L C Y S I L K A K N A E

CCGAAGAAAACATTTCTGCTGACTCCTGCGGTGCTGGGTG
E E N I L V V T P A V L G S

GGGACAGCCAGAGATGGAGCCACCCGAGACCGTGGGTGTGGGAGCTTTCCGGTGTCTCTGGGAGGGAGTTGGGCTGGGCTGTGACTCCTCAGCCTCTGTTTTCCCCAG
G Q P E M E P P R R P S G V G S F P V S P G R G V G L G L *

Fig. 11N



Protein that lacks motif A

ATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGCCACGTTCTGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGACGCGGGGACCCGGCGGCTTTCCGCGCGCTGGTGCCCACTGCTGTGCTGCGCTGGGACGACGCGCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTCCGCCAGGTGCTGCTGAAGGAGCTGGTGCCCGAGTGCTGCAGAGGCTGTGCGAGCGGGCGCAAGAAGCTGCTGGCTTCGGCTTCGCGCTGCTGGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCAGCTACCTGCCAACAGCGTGACCGACGACTGCGGGGAGCGGGGCTGGGGCTGCTGCTGCGCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTCACCTGCTGGCAGCTGCGCGCTTTGTGCTGGTGCTCCAGCTGCGCTACAGGTGTGCGGGCGCGCTGTACCAGCTCGGCGTGCCACTCAGGCCCGCCCCGCG
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

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H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCGTTGCCAAGAGGCCAGGCGTGGCGCTGCCCTGAGCGGAGCGGACGCCGTTGGGCGGGGCTCTGGGCCACCGGGCAGGACGCGTGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGTGTGCTACCTGCCAGACCCGCCAAGAGCCACCTCTTTGGAGGTCGCTCTCTGCGACGCGCACTCCACCCATCCGTGGGCGGCCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCGCTCCCTGGGACACGCTTGTCCCCCGGTGTACGCGGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGCTGCGGCGCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCTAGGCCCCAGCCTGACTGGCGCTGGAGGCTCGTGAGACCATCTTTCTGGGTTCAGGCGCTGGATGCCAGGGACTCCCCGAGGTGCCCCGCTGCCCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGGGCGCTGTTTCTGGAGCTGCTTGGGAACACGCGCAGTCCCCCTACGGGTGCTCCTCAAGCGCACTGCCCCGCTGCGAGCTGCGGTACCCAGCAGCGGTGCTGTGCCCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

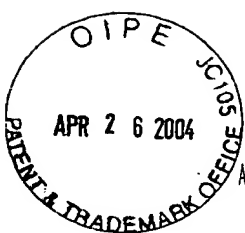
GGAGAAGCCCCAGGCTCTGTGGCGGGCCCCGAGGAGGAGACAGACCCCGTCGCTGGTGACGTGCTCCGCGACACAGCAGCCCTGGCAGGTGTACGGCTTCGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGCCCCAGGCTCTGGGGCTCCAGGCACAACGAACGCGCTTCTCAGGAACACCAAGAAGTTCTCTCCCTGGGAAGCATGCCAAGCTCTCGTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCGTGGGACTGCGCTTGGTGGCGAGGAGCCAGGGGTGGCTGTGTTCCGGCGCAGAGCACCCTGCGTGAGGAGATCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGACGTGCTGAGCTGCTCAGGTCTTTCTTTATGTCAGGAGACCAGGTTTCAAAGAAGAGGCTTTTCTACCGGAAGAGTGTGAGCAAGTTGCAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 110



AATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTGCGGAAGCAGAGGTGAGGCAGCATCGGGAAGCCAGGCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

CGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTTCCGAGAGAAAAGAGGGCCGAGCGTCTACCTCGAGGGTGAAGGCACTGTTACGCGTCTCAACTAGCA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GCGGGCGCGGCCGCCGCCCTCTGGGCGCCTGTGTGCTGGGCGCTGGACGATATCCACAGGGCTGGCGACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCCCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTC AAG GACAGGCTCAGGAGGTGATCGCCAGCATCATCAAAACCCAGAACAGTACTGCGTGGCTCGGTATGCCGTGGTCCA
V K D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAAGGCGGCCCATGGGCAGCTCCGCAAGGCCCTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D

TGCCGTCGTATCGAGCAGAGCTCCTCCCTGAATGAGGCCAGCAGTGGCCTCTTGACGCTCTTCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C

CCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTCTGCAGCCTGTGTACGGCGACATGGAGAACAAGCTGTTTGGGGGATTGCGCGGGACGGGCTGCTCCTGCGTTTGGTGGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D

TGATTTCTGTTGGTGACACCTCACCTCACCCACGCGAAAACCTTCTCAGGACCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACCTTGGGAAGACAGTGGTGAACCTCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P

TGTAGAAGACGAGGCCCTGGGTGGCAGCGCTTTTGTTCAGATGCGGGCCACGGCCTATTCCCTGGTGGCGCTGCTGCTGGATACCCGGACCTTGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S S

CTATGCCCCGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGGGCTGAAGTGTACAGCCTGTTTCTGGA
Y A R T S I R A S L T F N R G F K A G R N M R R K L F G V L R L K C H S L F L D

TTTGAGGTGAACAGCCTCCAGAGCGGTGTGACCAACATCTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTACGCGATGTGTGCTGCAGCTCCATTTATCAGCAAGTTTGAAGAA
L Q V N S L Q T V C T N I Y K I L L L Q A Y R F H A C V L Q L P F H Q Q V W K N

CCCCACATTTTCTGCGCGTCATCTCTGACAGCGCCTCCTCTGCTACTCCATCCTGAAAGCCAAAGAACGAGGGATGTCGCTGGGGGCCAAGGGCGCCGCCGCCCTCTGCCCTCCGA
P T F F L R V I S D T A S L C Y S I L K A K N A G M S L G A K G A A G P L P S E

GGCGTGCAGTGGCTGTGCCACCAAGCATTCTGCTCAAGCTGACTCGACACCGTGTACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCAGACGAGCTGAGTCGGAAGCTCCC
A V Q W L C H Q A F L L K L T R H R V T Y V P L L G S L R T A Q T Q L S R K L P

GGGGACGACGCTGACTGCCCTGGAGGGCCGAGCCAACCGGCACTGCCCTCAGACTTCAAGACCATCTGGAGTGTGATGGCCACCCGCCACAGCCAGGCGGAGAGCAGACACGAGCAGCC
G T T L T A L E A A A N P A L P S D F K T I L D

CTGTACGCGGGCTCTACGTCCAGGGAGGGAGGGGGGCCACACCCAGGCGCCGACCGTGGGAGTCTGAGGCTGAGTGTGTTTGGCCAGGCTGCATGTCCGGCTGAAGGCT
GAGTGTCCGGCTGAGGCTGAGCGAGTGTCCAGCAAGGGCTGAGTGTCCAGCACACCTGCCGTCTTCACTTCCCACAGGCTGGCGCTCGGCTCCACCCAGGGCCAGCTTTTCTCAC
CAGGAGCCGGCTTCCACTCCCCACATAGGAATAGTCCATCCCCAGATTGCGCATTTGTTACCCCTCGCCCTGCCCTCCTTTGCTTCCACCCCCACCATCCAGGTGGAGACCTGAGAA

Fig. 11P



GGACCTGGGAGCTCTGGGAATTTGGAGTGACCAAAGGTGTGCCCTGTACACAGGCGAGGACCTGCACCTGGATGGGGTCCCTGTGGGTCAAATTGGGGGGAGGTGCTGTGGGAGTAA

AATACTGAATATATGAGTTTTTCAGTTTTGA

Fig. 11Q



Truncated protein that lacks motif A

ATGCCGCGCGCTCCCCGCTGCCGAGCGTGCCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGCCAGGTTTCGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGTGGTGCAGCGGGGACCCGGCGGCTTTCCGCGCGTGGTGGCCAGTGCCTGGTGTGCGTGCCCTGGGACGCACGGCCGCCCCCGCCG
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTTCGCGAGGTGCTGCCTGAAGGAGCTGGTGGCCGAGTGTGCAGAGCGTGTGCGAGCGGGCGGAAGAACGTGCTGGCTTCGGCTTCGCGTGTGGACGGGGCCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCAGCTACCTGCCAACACGGTGACGACGCACTGCGGGGAGCGGGGCTGGGGGCTGCTGCTGCGCCGCTGGGCGACGAGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGTTACCTGCTGGCAGCTGCGCGCTTTTGTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGGGGCGCCGCTGTACCAGCTCGGCGCTGCCACTAGGCCCCGGCCCCGCG
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAAGGCTGTGGGATGCGAACGGGCTGGAACCATAGCGTCAGGAGGGCGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGCGCGGGGCGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTCTGCCGTTGCCAAGAGGCCAGCGGTGGCGCTGCCCTGAGCGGAGCGGACCCCGTTGGGCGAGGGTCTGGGCCCCCGGGCAGGACGCTGGACCGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGTGTACCTGCCAGACCCGCGAAGAAGCCACCTCTTTGGAGGGTGCCTCTGTGCGACGCGCCACTCCACCCATCCGTGGGCGCCAGCACACCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGGCGCCACACGCTCCCTGGGACAGCGCTTGTCCCCGGTGTACGCGAGACCAAGCACTTCTCTACTCCTCAGGCGACAAGGAGAGCTGCGGCGCTCCTTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTCGAGGCGCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATTTTCTGGGTTCCAGGCGCTGGATGCCAGGACTCCCCGAGGTGCCCCGCTGCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCCGTTTCTGGAGCTGCTTGGGAACACGCGAGTGCCCTACGGGGTGTCTCTAAGACGCACTGCGCGTGGAGCTGCGGTACCCCGAGCGCGGTGTGTGCGCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

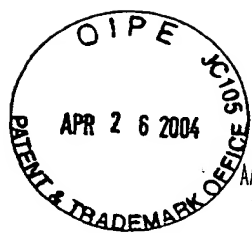
GGAGAAGCCCCAGGGCTGTGTGGCGCCCCGAGGAGGAGACAGACCCCGTGGCTGGTGCAGCTGCTCCGCGACACAGAGCCCTGGCAGGTGTACGGCTTCGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCCGAGGCTCTGGGGCTCCAGGCACAACGACGCGCTTCTCAGGAACACCAAGAAGTTATCTCCTGGGAAGCATGCCAAGCTCTCGTGCAGGAGT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCGTGGCGGACTGCGCTTGGCTGGCAGGAGCCAGGGTGGCTGTGTTCGGCGCGAGCAGCGCTGCGTGAGGAGATCTGGCCAAGTTCTGCAGTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTCTTTATGTACGAGACACGTTTCAAAGAAGAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 11R



AATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGAGGTCAGGCAGCATCGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

CGGGCTGCGGCCGATTGTGAACATGGACTACGTGCTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGCCGAGCGTCACTCGAGGGTGAAGGCACTGTTACGCGTGTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GCGGGCGCGGCCCGCCCGCCTCTGCTGGGCGCCTGTGCTGGGCGTGGACGATATCCACAGGGCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCGCCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTCAAG
V K

GACAGGCTCAGGAGGTGCATCGCCAGCATCATCAACCCAGAACAGTACTGCGTGGTGGTATGCCGTGGTCCA
D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAAGGCCGCCATGGGCAGTCCGCAAGGCCCTCAAGAGCCACGTCTTACCTTGACAGACTCCAGCGTACATGCGACAGTTGCTGGCTCACCTGCAGGAGACAGCCCGCTGAGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D

TGCCGTGTCATCGAGCAGAGTCTCCCTGAATGAGGCCAGCAGTGGCCTTTCGACGTCTTCTACGCTTCATGTGCCACACGCCGTGCGCATCAGGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C

CCAGGGGATCCCGAGGGCTCCATCTCTCCACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGGGGGATTCGGCGGGACGGGCTGCTCTGCGTTTGGTGGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D

TGATTTCTTGTGGTGACACCTCACCTCACCCACGCGAAAACCTTCTCAGGACCTGGTCCGAGGTGTCCTGAGTATGGCTGCGTGGTGAACCTTGCGGAAGACAGTGGTGAACCTCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P

TGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGATGCCGCCCCAGGCCATTTCCCTGGTGGGCGCTGCTGCTGGATACCGGACCTGGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S R

GTGAGCGCACCTGGCGGAAGTGGAGCTGTGCCCGGCTGGGGCAGGTGCTGCTGCAAGGGCGTTGCGTCCACCTCTGCTTCCGTGTGGGGCAGGGCACTGCCAATCCCAAGGGTCAGA
*

TGCCACAGGGTCCCCCTCGTCCCATCTGGGGCTGAGCACAAATGCATCTTTCTGTGGAGTGAGGGTGCCCTCACAACGGGAGCAGTTTTCTGTGCTATTTTGGTAA...

Fig. 11S



Lacks motif A and altered C-terminus

ATGCCGCGCGCTCCCCGCTGCCGAGCGTGGCGTCCCTGCTGCCGAGCCACTACCGGAGGTGCTGCCGTGGCCACGTTGCTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGTGGTGACGCGGGGACCCGGCGCTTTCGCGCGTGGTGGCCAGTGCCGTGGTGCGTGGCTGGGACGACGGCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

CCCCCTCTCCGCGAGGTGCTGCTGAAGGAGCTGGTGGCCGAGTGCTGACAGGGCTGTGCGAGCGCGCGGAGAACGTGCTGGCTTCGGCTTCGCGTGGTGGGGGGCGG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGGCTTACCACGAGCGTGGCAGTACCTGCCAACACGGTGACGACGCACTCGGGGGAGCGGGGCTGGGGGCTGCTGCTGCGCGCTGGGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTACCTGCTGGCAGCTGCGCGCTTTTGCTGGTGGCTCCGAGCTGCGCTACAGGTGTGGGGCGCGCTGTACCAGCTGCGCGTGGCACTAGGCGCGCGCGCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGGACCCGAAGGCTGCTGGGATGCGAACGGGCTGGAACCATAGCGTCAGGAGGGCGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTCTGCCGTTGCCAAGAGGCCAGGCGTGGCGTGGCTGCGCTGAGCGGGAGCGGACGCCGTTGGGAGGGGTCTGGGCCACCCGGGAGGACGCGTGACGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTCTGTGGTGTACCTGCCAGACCCCGAAGAAGCCACCTCTTTGGAGGGTGGCGTCTGTGGCAGCGCCACTCCACCCATCCGTGGGCGCGCAGCACCAGCGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGCCACCACGTCCTGGGACACGCTTGTCCCCGGGTGACGCCGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGTGGCGCCCTCTCTCTACTAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGCGCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATTTCTGGGTTCCAGGCGCTGGATGCCAGGGACTCCCGCAGGTTGCCCGCTGCCACGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGCGGCCCTGTTCTGGAGCTGCTTGGGAACACGCGCAGTGCCCTACGGGGTGTCTCTAAGACGCACTGCCGCTGCGAGCTGCGGTACCCACGACGCGGTGTCTGTGCCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

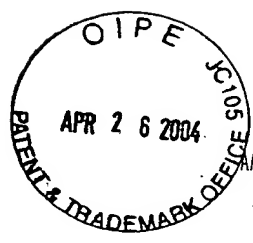
GGAGAAGCCCCAGGGCTCTGTGGCGCCCCGAGGAGGAGACAGACCCCCGTCGCTGGTGCAGTGTCTCGCCAGCAGCAGCCCCGGCAGGTGTACGGCTTCTGTGGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTCCCCAGGCTCTGGGGCTCAGGCACAACGACGCGCTTCTCAGGAACACCAAGAAGTTCTCTCCCTGGGAAGCATGCCAAGCTCTGCTGACGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

GACGTGGAAGATGAGCGTGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGTGGCTGTGTTCCGGCGCAGAGCAGCTGCGTGAGGAGATCTGGCAAGTCTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L

GATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTCTTTATGTACGGAGACCAGTTTCAAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G

Fig. 11T



ATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGAGCTGTGGAAGCAGAGGTCAGGCAGCATCGGAAGCCAGGCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

CGGGCTCGGCCGATTGTGAACATGGACTACGTGCTGGGAGCCAGAAGCTTCCGAGAGAAAAGAGGGCCGAGCGTCTACCTCGAGGGTGAAGGCACTGTTACGGCTGCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R A E R L T S R V K A L F S V L N Y E

GCGGGCGGGCGGCCCTCTGCTGGGCTGACGATATCCAGGGCTGGCGACCTTCGTGCTGCGTGTGCGGGCCAGGACCCGCCCTGAGCTGTACTT
R A R R P G L L G A S V L G L D D I H R A W R T F V L R V R A Q D P P P E L Y F

TGTCAAG
V K

GACAGGCTCAGGAGGTGATCGCCAGCATCATCAACCCAGAACAGTACTGCGTGGCTGGTATGCCGTGGTCCA
D R L T E V I A S I I K P Q N T Y C V R R Y A V V Q

GAAGGCCGCCATGGGCAGTCCGCAAGGCTTCAAGAGCCAGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTACCTGCAGGAGACAGCCCGTGGGGA
K A A H G H V R K A F K S H V S T L T D L Q P Y M R Q F V A H L Q E T S P L R D

TGCGTGTGTCATCGAGCAGAGCTCCTCCGTAATGAGGCCAGCAGTGGCTCTTCGACGTCTTCTACGCTTCATGTGCCACCAGCCGTGCGCATCAGGGCAAGTCTACGTCCAGTG
A V V I E Q S S S L N E A S S G L F D V F L R F M C H H A V R I R G K S Y V Q C

CCAGGGGATCCCGAGGGCTCCATCCTCTCCAGCTGCTCTGCAGCCTGTGTACGGGACATGGAGAACAAGTGTTCGGGGATTGCGGGGACGGGCTGCTCTGCGTTTGGTGA
Q G I P Q G S I L S T L L C S L C Y G D M E N K L F A G I R R D G L L L R L V D

TGATTTCTTGTGGTGACACCTCACCTCACCCAGCGAAACCTTCTCAGGACCTGGTCCGAGGTGCTCCTGAGTATGGCTGCGTGGTGAACCTTGGGAAGACAGTGGTGAACCTCCC
D F L L V T P H L T H A K T F L R T L V R G V P E Y G C V V N L R K T V V N F P

TGTAGAAGACGAGGCCCTGGGTGGCAGGGCTTTTGTTCAGATGCCGGCCACGGCTATTCCCTGGTGGGCTGCTGCTGGATACCCGGACCTGGAGGTGCAGAGCGACTACTCCAG
V E D E A L G G T A F V Q M P A H G L F P W C G L L L D T R T L E V Q S D Y S S

CTATGCCGGGACCTCCATCAGAGCAGTCTCACCTTCAACCGCGGCTTCAAGGCTGGGAGGAACATGCGTGGCAAACTCTTTGGGGTCTTGGGCTGAAGTGTACAGCCTGTTTCTGGA
Y A R T S I R A S L T F N R G F K A G R N M R R K L F G V L R L K C H S L F L D

TTTGAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTACAAGATCCTCTGCTGACGGCGTACAGGTTTACGCATGTGTGCTGCAGTCCCATTTCATCAGCAAGTTTGAAGAA
L Q V N S L Q T V C T N I Y K I L L L Q A Y R F H A C V L Q L P F H Q Q V W K N

CCCCACATTTTCTGCGGTGATCTCTGACAGGCTCCTCTGCTACTCCATCCTGAAAGCCAAGAAGCAGGGATGTGCTGGGGCCAAGGGCGCCGCCGCCCTCTGCCCTCCGA
P T F F L R V I S D T A S L C Y S I L K A K N A E

|
CCGAAGAAAACATTTCTGTGCTGACTCTGCGGTGCTTGGGT
E E N I L V V T P A V L G S

GGGACAGCCAGAGATGGAGCCACCCCGCAGACCGTGGGTGTGGGAGCTTTCCGGTGTCTCTGGGAGGGAGTTGGGCTGGGCTGTGACTCCTCAGCCTCTGTTTTCCCCAG
G Q P E M E P P R R P S G V G S F P V S P G R G V G L G L *

Fig. 11U



Truncated telomerase (ver. 2)

ATGCCGCGCGCTCCCCGCTGCCGAGCGTGCCTCCCTGCTGCCAGCCACTACCGGAGGTGCTGCCGCTGGCCACGTTCTGT
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGTGGTGACGCGCGGGACCGGGGCTTTCCGCGGCTGGTGGCCAGTGCTGGTGTGCGTGGCCGACGACGCGCGCCCCCGCGCG
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCTCCCCGGGTGGCGTCCGGTGGGGTTGAGGGCGCGGGGGGAACAGCGACATCGGAGAGCAGCGAGGCGACTCAGGGCGCTTCCCCCGAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCCAGGTGCTGCTGAAGGAGTGGTGGCCGAGTGTGCAGAGGCTGTGCGAGCGCGCGGAAGAAGCTGCTGGCTTCGGCTTCGCGTGTGGACGGGGCGG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTCACCACGAGCGTGGCAGCTACCTGCCAACAGGTGACCGAGCACTGCGGGGAGCGGGGCGTGGGGGCTGCTGCTGCCCGCGTGGGCGACGAGCT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGGTTCACCTGCTGGCAGCTGCGCGCTCTTTGTGCTGGTGGCTCCAGCTGCGCTACCAGGTGTGCGGGCGCGCGTGTACCAGCTGCGCGTGGCACTCAGGCGCGCGCGCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACAGCTAGTGGACCCGAGGCGTCTGGGATGCGAACGGGCTGGAACCATAGCGTACGGGAGGCGGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGCGCGGGGCGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTCTGCGTTGCCAAGAGGCCAGGCGTGGCGTCCCGTGAAGCGGAGCGGCGCGGTTGGGCGAGGGTCTGGGCGCACCGGGCAGGACGCGTGGACGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTTCTGTGTGTACCTGCCAGACCCGCGAAGGCCACCTCTTTGGAGGGTGGCTCTCTGGCAGCGGCACTCCACCCATCCGTGGGCGCGCAGCACCAGCGGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGGCCACCAGTCCCTGGGACAGGCTTGTCCCCGGTGTACGCGGAGACCAAGCACTTCTCTACTCTCTCAGGCGACAAGGAGAGCTGCGGCCCTCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGCGCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGCGCTGGATGCCAGGGACTCCCCGAGGTTGCCCGGCTGCCCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGGGCGCTGTTCTGGAGCTGCTTGGGAACACGCGAGTGCCCTACGGGGTGTCTCAAGACGCACTGCCGCTGCGAGCTGCGGTACCCAGCAGCGGCTGTGTGCGCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCAGGCTCTGTGGCGGGCCCCGAGGAGGAGACAGACCCCGTGGCTGGTGCAGCTGCTCGCCAGCAGCAGGCGCTGGCAGGTGTACGGCTTCTGTGGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCCCAGGCTCTGGGGCTCCAGGCACAACGAGCGGCTTCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11V



GACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTTGGCTGTGTTCCGGCCGAGAGCACCCTGCGTGAGGAGATCCTGGCCAAGTTCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L
GATGAGTGTGTACGTCGTCGAGCTGCTCAGGCTTTTCTTTTATGTCACGGAGACCAGGTTTCAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G
AAT--NNN--GACAGTCACCAGGGGGTTGACCGCGGACTGGGCGTCCCAGGGTTGACTATAGGACCAGGTGTCCAGGTGCCCTGCAAGTAGAGGGGCTCTCAGAGGCGTCTGGCTGG
CATGGGTGGACGTGGCCCCGGGCATGGCCTTCTGCGTGTGCTGCCGTGGGTGCCCTGAGCCCTCACTGAGTCGGTGGGGGCTTGTGGCTTCCCGTGAGCTTCCCCCTAGTCTGTTGTCTG
GCTGAGCAAGCCTCCTGAGGGGCTCTCTATTG...

Fig. 11W



Truncated protein 1 (ver. 2)

ATGCCGCGCGCTCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCCGAGCCACTACCGCAGGGTGTGCCGCTGCCACGTTCTGTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCAGGGCTGGCGGTGGTGACGCGGGGACCCGGCGGCTTTCGCGCGCTGGTGGCCAGTGCCCTGGTGTGCGTGCCCTGGGACGACGCGCCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCCTCCCCGGGTGCGCTCCGCTGGGGTTGAGGGCGCGGGGGGAACCAGCGACATGCGGAGAGCAGCGCAGGCGACTAGGGCGCTTCCCCGCGAGGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCCAGGTGTCTGCTGAAGGAGTGGTGGCCGAGTGTGCGAGGCTGTGCGAGCGCGCGGAAGAAGTGTGGCTTCGGCTTCGCGCTGTGACGGGGCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCAGCTACCTGCCCAACACGGTGACCGACGACTGCGGGGAGCGGGGCGTGGGGGTGCTGCTGCCCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGTTCACTGCTGGCAGCTGCGCGCTTTTGTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGCGGGCGCGCGTGTACCAGCTCGGCGCTGCCACTCAGGCCGCGCCCCGCG
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACAGCTAGTGGACCCGAAGGCGTCTGGATGCGAACGGGCTGGAACCATAGCGTCAGGAGGCGGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGCGCGGGGCGAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCGAAGTGTCCGTTGCCAAGAGGCCAGGCGTGGCGCTGCCCCGAGCGGAGCGGACGCCGTTGGGCGAGGGTCTGGGCCACCCGGGCGAGGACGCGTGGACGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGGTTCTGTGTGTGTACCTGCCAGACCGCGGAAGAAGCCACCTTTTGGAGGGTGGCTCTCTGGCAGCGCCACTCCACCCATCCGTGGGCGGCCAGCACCACGGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGCGCCACCAGTCCCTGGGACAGCCTTGCCCCGGGTACGCCGAGACCAAGCACTTCTCTACTCTCAGGGCACAAGGAGCAGTGCAGGCTCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

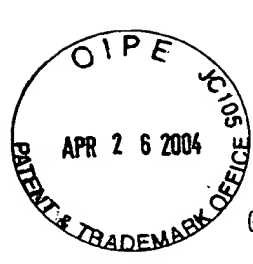
CTCTGAGGCCCAGCTGACTGGCGCTCGGAGGCTCGTGGAGACCATTTTCTGGTTCCAGGCGCTGGATGCCAGGGACTCCCCGAGGTGGCCCGCTGCCCGAGCGTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATCGGGCCCTGTTTCTGGAGTGTCTGGGAACACGCGAGTCCCCCTACGGGTGCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTACCCAGCAGCGGTGTGTGTGCGCG
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCGAGGCTCTGTGGCGGCCCCGAGGAGGAGACAGACCCCGTGGCTGGTGCAGTGTGCGCCAGCAGCAGCCCTGGCAGGTGTACGGCTTCGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGGCTGGTGGCCCCAGGCTCTGGGGCTCCAGGCACAACGAACCGCTTCTCAGGAACACCAAGAAGTTCATCTCCTGGGGAAGCATGCCAAGCTCTCGTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11X



GACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAGGAGCCAGGGGTTGGCTGTGTTCCGGCCGAGAGCACCCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCACTGGCT
T W K M S V R D C A W L R R S P G V G C V P A A E H R L R E E I L A K F L H W L
GATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTCTTTTATGTCACGGAGACCAGCTTTCAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGG
M S V Y V V E L L R S F F Y V T E T T F Q K N R L F F Y R K S V W S K L Q S I G
AATCAGACAGCACTTGAAGAGGGTGAGCTGCGGGAGCTGTCGGAAGCAGAGGTACGGCAGCATCGGGAAGCCAGGCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCCCAAGCCTGA
I R Q H L K R V Q L R E L S E A E V R Q H R E A R P A L L T S R L R F I P K P D

GTGGCTGTGCTTTGGTTTAACTTCCTTTTAAACCAGAA
V A V L W F T F L F N Q K

CGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAAGCTTCCGAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTACGCGTGCTCAACTACGA
G L R P I V N M D Y V V G A R T F R R E K R P S V S F R G *

Fig. 11Y



Truncated protein 2 (ver. 2)

ATGCCGCGCTCCCCGCTGCCGAGCGTGGCTCCCTGCTGCGCAGCCACTACCGCAGGTGCTGCCGCTGGCCACGTTCTG
M P R A P R C R A V R S L L R S H Y R E V L P L A T F V

CGGCGCTGGGGCCCCAGGGCTGGCGGCTGGTGACGCGGGGACCGGGGCTTTCCGCGCGCTGGTGGCCAGTGCCTGGTGTGCGTGGCTGGGACGACGCGCGCCCCCGCGC
R R L G P Q G W R L V Q R G D P A A F R A L V A Q C L V C V P W D A R P P P A A

GGCCTCCCCGGGGTGGCGCTCCGGCTGGGGTTGAGGGCGGCGGGGGGAACAGCGACATGCGGAGAGCAGCGCAGGCGACTCAGGGCGCTTCCCCGCGAGTG
G L P G V G V R L G L R A A G G N Q R H A E S S A G D S G R F P R R
A S P G S A S G W G * G R P G G T S D M R R A A Q A T Q G A S P A G
P P R G R R P A G V E G G R G E P A T C G E Q R R R L R A L P P Q V

CCCCCTCTCCGCGAGGTGCTGCTGAAGGAGCTGGTGGCCGAGTGTGCGAGCGCGGCGGAAGACGTGCTGGCTTCCGCTTCCGCTGCTGGACGGGGCCCCG
P S F R Q V S C L K E L V A R V L Q R L C E R G A K N V L A F G F A L L D G A R

CGGGGGCCCCCGAGGCTTACCACAGCGTGGCGAGTACCTGCCAACACGGTGACCGACGACTGCGGGGAGCGGGGCGTGGGGCTGCTGCTGCGCGCGTGGGCGACGACGT
G G P P E A F T T S V R S Y L P N T V T D A L R G S G A W G L L L R R V G D D V

GCTGTTACCTGCTGGCAGCTGCGCGCTCTTTGTGCTGGTGGCTCCAGCTGCGCTACAGGTGTGCGGGCGCGCGTGTACCAGCTGCGCGCTGCCACTCAGGCCGGCCCCCGC
L V H L L A R C A L F V L V A P S C A Y Q V C G P P L Y Q L G A A T Q A R P P P

ACACGCTAGTGACCCGAAGCGCTGGGATGCGAACGGGCTGGAACCATAGCGTCAGGGAGGCGGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAGGAGGCGGGGGCAGTGC
H A S G P R R R L G C E R A W N H S V R E A G V P L G L P A P G A R R R G G S A

CAGCCGAAGTCTGCGTTGCCAAGAGGCCAGGCGTGGCGTGGCTGAGCGGAGCGGACGCCGTTGGGCGAGGGTCTGGGCGCCACCGGCGAGGACGCTGGACGAGTGACCG
S R S L P L P K R P R R G A A P E P E R T P V G Q G S W A H P G R T R G P S D R

TGTTTCTGTGTGTGCTACCTGCCAGACCCGCGAAGAAGCCACCTTTTGGAGGGTGGCTCTCTGGCAGCGGCACTCCACCCATCCGTGGGCGCGCAGCACACGGGGCCCCC
G F C V V S P A R P A E E A T S L E G A L S G T R H S H P S V G R Q H H A G P P

ATCCACATCGGGCCACCACGCTCCCTGGGACAGCCTTGTCCTCCCGGTGTACCGGAGACCAAGCACTTCTCTACTCTCAGGCGACAAGGAGCAGCTGCGGCCCTCTCTACTCAG
S T S R P P R P W D T P C P P V Y A E T K H F L Y S S G D K E Q L R P S F L L S

CTCTGAGGCGCCAGCCTGACTGGCGCTCGGAGGCTCGTGAGACCATTTTCTGGTTCCAGGCGCTGGATGCCAGGGACTCCCCGAGGTGCCCCGCTGCCAGCGCTACTGGCA
S L R P S L T G A R R L V E T I F L G S R P W M P G T P R R L P R L P Q R Y W Q

AATGGGCCCCCTGTTTCTGGAGTGTCTGGGAACACGCGCAGTGGCCCTACGGGGTGTCTCTAAGACGCACTGCCGCTGCGAGCTGCGGTACCCCCAGCAGCGGTGTGTGTGCGCC
M R P L F L E L L G N H A Q C P Y G V L L K T H C P L R A A V T P A A G V C A R

GGAGAAGCCCCAGGCTCTGTGGCGGCCCCGAGGAGGAGACAGACCCCGCTGGCTGGTGCAGTGTCTCGCCAGCAGCAGCCCTGGCAGGTGTACGGCTTCGTGCGGGCTG
E K P Q G S V A A P E E E D T D P R R L V Q L L R Q H S S P W Q V Y G F V R A C

CCTGCGCGCTGGTGGCCCCAGGCTCTGGGGCTCCAGGCACAACGAACGCCCTTCTCAGGAACCAAGAAGTTCTCTCCCTGGGGAAGCATGCCAAGCTCTCGCTGCAGGAGCT
L R R L V P P G L W G S R H N E R R F L R N T K K F I S L G K H A K L S L Q E L

Fig. 11Z